LITIGATION TECHNICAL SUPPORT AND SERVICES

ROCKY MOUNTAIN ARSENAL

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FINAL PHASE I
CONTAMINATION ASSESSMENT REPORT
SITE 30-1: IMPACT AREA
(INCLUDES 30-7: GROUND DISTURBANCE)
(Version 3.3)

January 1988
Contract Number DAAK11-84-D0016
Task Number 14 (Army Sites North)

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

HARDING LAWSON ASSOCIATES

MIDWEST RESEARCH INSTITUTE

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THIS FINAL REPORT DOCUMENTS THE PHASE I CONTAMINATION USED FROM 1945 TO 1951 AS AN IMPACT AREA FOR 4.2 INCH MORE 66 SAMPLES FROM 29 BORINGS WERE ANALYZED FOR VOLATILE ORGANICS AND METALS WITH SEPARATE ANALYZES FOR AS AND HG. DETECTED ABOVE INDICATOR RANGES; HOWEVER, THESE ELEVATED ASSOCIATED WITH BEDROCK WHICH CONSISTS OF VOLCANICLASTIC ORGANIC COMPOUNDS WERE DETECTED. METAL ANOMALIES WERE FOR A PHASE II PROGRAM CONSISTING OF 5 ADDITIONAL BORINGS INVESTIGATE THREE AREAS WHICH HAVE NOT BEEN FULLY INVESTIGATE. POTENTIALLY CONTAMINATED MATERIAL PRESENT IS ESTIMATED AT YARDS. APPENDICES: CHEMICAL NAMES, PHASE I CHEMICAL DATA, COME	RTARS. AND SEMIVOLATILE CU, PB, AND ZN WERE METAL VALUES ARE MATERIAL. NO TARGET DUND AT THE SITE. IS RECOMMENDED TO IGATED. THE VOLUME OF I 70,000 BANK CUBIC
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Rocky Mountain Arsenal

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January 1988
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Task Number 14 (Army Sites North)

PREPARED BY

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

Harding Lawson Associates Midwest Research Institute (Prepared under Task 21)

PREPARED FOR

U.S. ARMY PROGRAM MANAGER'S OFFICE FOR ROCKY MOUNTAIN ARSENAL

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EXECUTIVE SUMMARY

SITE 30-1: IMPACT AREA

Site 30-1, Impact Area, is in the northeast portion of Rocky Mountain Arsenal (RMA) in Section 30. The site was used as a mortar impact area from 1946 until the early 1950's, although the source of mortar fire is uncertain. This site was investigated under Task 14 in the spring of 1986. A total of 29 soil borings were drilled to depths of 5 to 10 feet (ft) and 66 samples were collected. An extensive geophysical reconnaissance program using magnetic and electromagnetic techniques was performed over the entire site. An additional investigation consisted of surface sweeps for metal debris, test pit excavations for geophysical anomalies, and several borings drilled for geological information.

Four other sites (30-4, 30-5, 30-6, and 30-7) are within the Site 30-1 boundaries. Site 30-7, a ground disturbance of unknown origin, is included in this Site 30-1 investigation. Site 30-4 (Sanitary Landfill) is addressed in a Task 7 investigation. The remaining two sites are addressed in independent Task 14 Contamination Assessment Reports.

Copper, lead, and zinc were the only metals detected at concentrations above their indicator ranges. All other metal values were within or below their respective indicator ranges. Elevated metal values are associated with a well-defined bedrock high which consists, in part, of Tertiary-age volcaniclastic material. No target organic compounds were detected at this site. Several nontarget organic compounds were detected at low concentrations and were tentatively identified as natural organic products, phthalates, and unknown hydrocarbons.

A Phase II program consisting of 5 soil borings (20 samples) is recommended to investigate three areas (a geophysical anomaly, a trench, and a possible burn site) which were not fully investigated by the Phase I investigation. These three areas are estimated to cover 37,500 square feet (ft²) and to contain 8,400 bank cubic yards (bcy) of potentially contaminated soil.

Phase I data and aerial photographs indicate that the main portion of the mortar impact range is in the area of visible impact craters and is estimated to cover $2,100,000~\rm{ft}^2$ (approximately $1,000~\rm{by}~2,100~\rm{ft}$). Results also suggest that up to $70,000~\rm{bcy}$ of soil in the impact range may be contaminated with a large quantity of small metal pieces and unexploded ordnance (UXO).

SITE 30-1: IMPACT AREA (Includes 30-7: Ground Disturbance)

1.0 PHYSICAL_SETTING

1.1 LOCATION

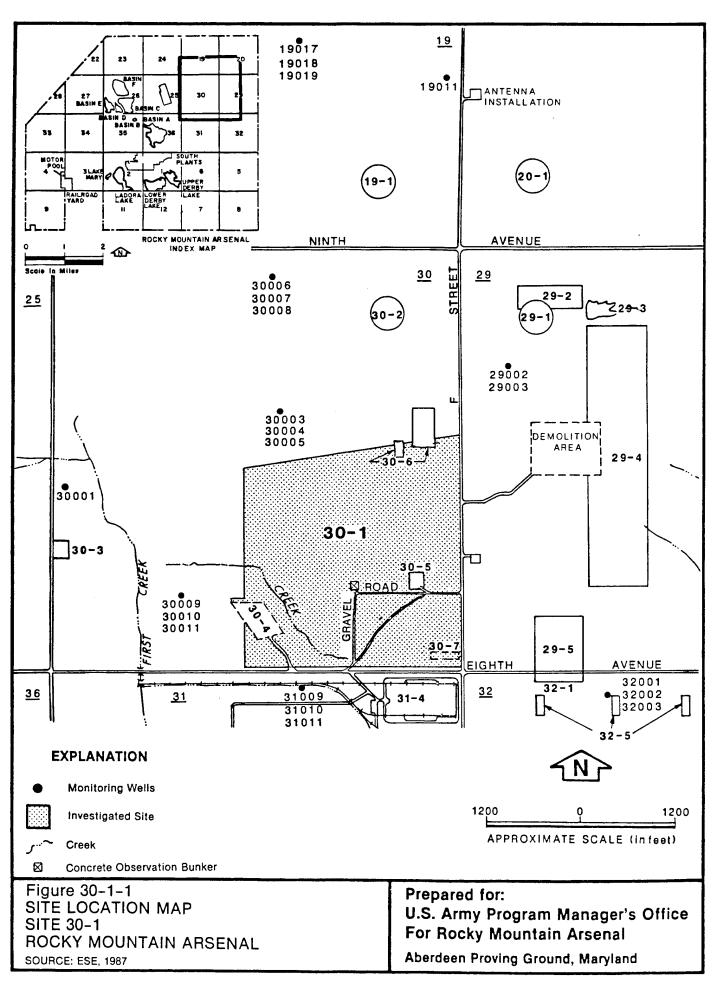
Site 30-1, the primary impact area for 4.2-inch mortar rounds, comprises most of the southeast corner of Section 30 as shown in Figure 30-1-1. A dirt road in the southeast corner of the section once encircled the site which was considered to be the primary impact range (Geraghty and Miller, 1982, RIC#81342R06; Stout et al., 1982, RIC#83368R01; RMACCPMT, 1984, RIC#84034R01). The following four sites are within and adjacent to Site 30-1:

Site	Description/Activity
30-4	Sanitary landfill
30-5	M-34(GB) Demilitarization area
30-6	M-34 disposal trenches
30-7	Ground disturbance, unknown origin

Sites 30-4, 30-5, and 30-6 are addressed in other Contamination Assessment Reports, while Site 30-7 is included as part of this Site 30-1 Contamination Assessment Report. Because the boundaries for Site 30-1 were not discernible on any aerial photograph, they were derived from the 1984 Rocky Mountain Arsenal Contamination Control Program Management Team map (RMACCPMT) (RIC#84034R01). Visible impact craters were also used to determine the site boundaries.

1.2 GEOLOGY

Site 30-1 is situated on Pleistocene alluvium which consists of interbedded silty sand, gravel, and clay partly covered by a thin layer of eolian silt and sand. The thickness of the alluvium generally varies from 2 to 20 feet (ft), with the thickest portion located along the western boundary near First Creek, in the vicinity of Well 30010 (May, 1982, RIC#82295R01). The eastern portion of the site is located over a bedrock high and has a thin alluvial cover.



The alluvium is underlain by the Denver Formation which is characterized by bentonite-rich clay/shale and compact lenticular sand horizons. Lithologic variations in the Denver Formation include interbedded siltstone, claystone, sandstone, conglomerate, low-grade coal, lignite, and volcaniclastic material. The sandstone units are as much as 20-ft thick and are typically discontinuous, loosely to poorly cemented, and commonly grade into siltstone or shale. Locally, however, the sands are well-cemented (Stollar and van der Leeden, 1981, RIC#81293R05; Geraghty and Miller, 1982, RIC#81342R06; May, 1982, RIC#82295R01; RMACCPMT, 1983, RIC#83326R01; Clark, 1985, RIC#85183R01; Anderson et al., 1979, RIC#85214R03).

The Phase I boring program investigated the alluvium and bedrock at 29 boring locations. A sandy silt or silty sand interbedded with clayey silt lenses was the dominant soil type encountered. Grain size and sand content generally increased with depth. The Denver Formation was encountered in four borings as follows:

Boring_No.	Depth_(ft)	Lithologies
5334	9	weathered volcaniclastic
5335	6	weathered claystone
5341	5	weathered volcaniclastic
5345	7	weathered volcaniclastic

Borings in Site 30-5, which is within Site 30-1 (Figure 30-1-1), encountered Denver Formation claystone at depths of 3 to 4 ft. Boring logs 5334 and 5335 (Figures 30-1-2 and 30-1-3) are representative of surficial site geology at Site 30-1.

1.3 HYDROLOGY

Site 30-1 is situated in the First Creek drainage basin on a west to southwest-facing slope (Figure 30-1-4). Elevations along the eastern site border (F Street) range from approximately 5,247 to 5,270 ft above mean sea level (ft msl): elevations in the southwest part of the site range from approximately 5,220 to 5,230 ft msl. Surface drainage generally flows west toward First Creek, which is approximately 1,300 ft west of the western site boundary (Figure 30-1-4). Site 30-4 (Sanitary Landfill) lies between Site 30-1 and First Creek and may receive surface runoff from Site 30-1.

A small unnamed drainage channel crosses Site 30-1 from the south boundary and flows northwest toward First Creek (Figure 30-1-4). In a 1964 aerial

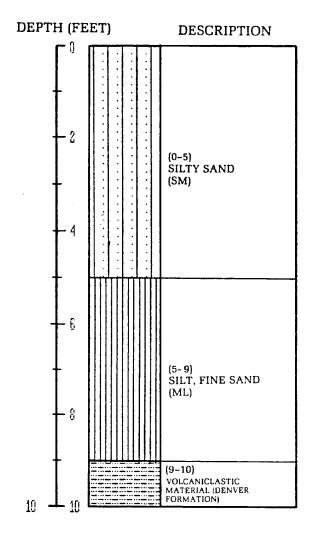


Figure 30-1-2 FIELD BORING PROFILE FOR BORING 5334

SOURCE: ESE, 1987

Prepared for:

U.S. Army Program Manager's Office For Rocky Mountain Arsenal

Aberdeen Proving Ground, Maryland

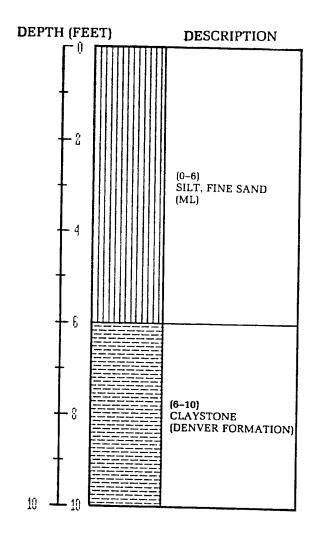
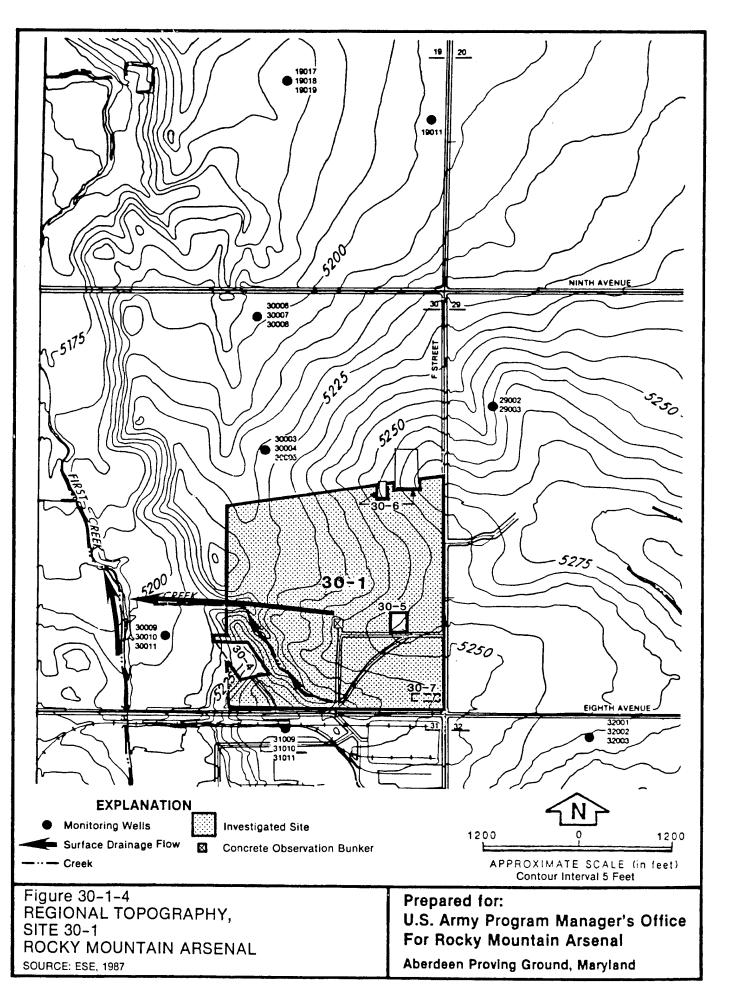


Figure 30-1-3 FIELD BORING PROFILE FOR BORING 5335

SOURCE: ESE, 1987

Prepared for:
U.S. Army Program Manager's Office
For Rocky Mountain Arsenal
Aberdeen Proving Ground, Maryland

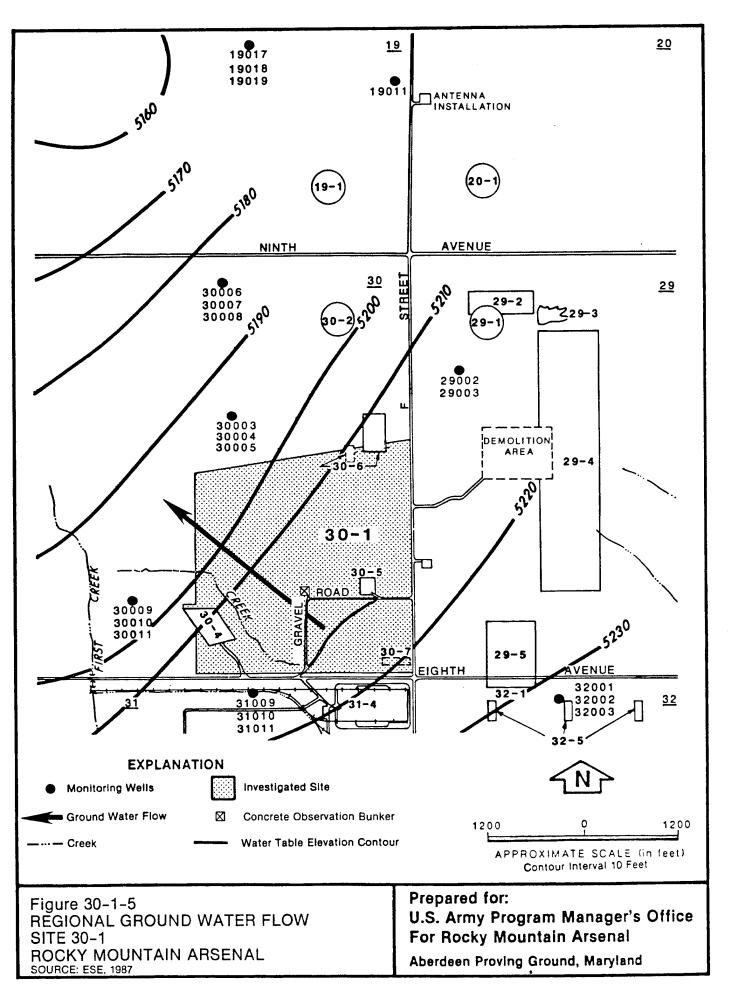


photograph, liquid was noted in this channel, although it was not entering First Creek (Stout et al., 1982, RIC#83368R01). It is unknown what effect, if any, this small drainage has had on the hydrology of the area.

Most of Section 30 overlies a bedrock high. The water table lies below the alluvial-Denver Formation contact at an elevation of approximately 5,195 to 5,220 ft msl. Available data indicate that the water table occurs within the alluvium only in the southwestern portion of the site (RMACCPMT, 1983, RIC#83326R01).

Water levels measured during the Task 4 Initial Screening Program indicate that wells surrounding Site 30-1 (Figure 30-1-5) have depths to water ranging from 8.5 ft (5,197 ft msl, Well 30009) in the west to 35 ft (5,214 ft msl, Well 29002) in the northeast (ESE, 1986c, RIC#86238R08). Wells to the north (Well 30004) and south (Well 31009) have depth to water measurements of 29.6 (5,195 ft msl) and 27.4 ft (5,214 ft msl), respectively. Ground water flow is generally to the northwest.

Historical data (Clark, 1985, RIC#85183R01) suggest that the water table elevation in this area has varied little over the past 5 years. Phase I borings were drilled to a depth of 10 ft, but did not penetrate the water table. An isolated 10 parts per billion (ppb) endrin value was reported downgradient in Denver Formation Well 30005 (ESE, 1986c, RIC#86238R08). These results, however, are provided for background purposes and are not intended to be correlated with soil sample analytical results generated as part of the Phase I study. It is not possible to determine on the basis of available data if activities at Site 30-1 have affected ground water beneath this site.



2.0 HISTORY

Section 30 was part of the original buffer zone for RMA operations from 1945 until 1951, when the RMA boundary was moved east to its present location. From 1945 to 1951, Site 30-1 was reportedly used as an impact range for 4.2-inch mortars (Wingfield, 1977, RIC#81266R68). Several resources describe the impact range differently. One drawing illustrates that areas of Sections 26, 35, 25, 36, 30, 31, 29 and 32 were part of the mortar range (RMA, 1946). Four observation posts were associated with the reported mortar range, one which was located atop Rattlesnake Hill in Section 35, one atop the hill on Eighth Avenue between D and E streets in Section 25, one at the intersection of E Street and Eighth Avenue, and a concrete bunker in Section 30 (U.S. Army Chemical Corps, 1945; U.S. Army Chemical Corps, 1946). The 1949 aerial photograph of Section 30 shows a dirt road in the southeast section corner that encircles an area considered to be the primary impact range (Geraghty and Miller, 1982, RIC#81342R06).

The Installation Assessment Report (Wingfield, 1977, RIC#81266R68) suggests that the impact area includes the northeast corner of Section 30 and the adjacent areas of Sections 19, 20, and 29. This location appears unlikely, however, since Sections 19 and 20 were outside the RMA boundary in the late 1940's (Geraghty and Miller, 1982, RIC#81342R06). Although 4.2-inch mortar fragments have been found in the south-central portion of Section 30, no fragments have been found in the northeast portion of the section (Wingfield, 1977, RIC#81266R68).

A concrete bunker, used to observe mortar impacts, is located near the center of the site. Windows in the bunker are present only on the north and west sides, suggesting that the main impact range was north of the bunker. The ground disturbance identified as Site 30-7 in the southeast corner of Site 30-1, was located on a 1958 aerial photograph, but its history is unknown (RMACCPMT, 1984, RIC#84034R01). It is unlikely that Site 30-7 was in the Section 30 impact range due to its proximity to the southeast section corner. The 1958 aerial photograph does show a trench at Site 30-7 (Stout et al., 1982, RIC#83368R01), although no information is available on what,

if anything, may have been disposed of in the trench. Drawing D-748 and pre-Arsenal aerial photographs indicate a farming silo once stood directly adjacent to F Street, just northeast of Site 30-5.

U.S. Army Technical Escort Center (TEC) personnel have indicated that the maximum penetration depth for 4.2-inch mortars is 8 ft. Six ft is considered a conservative average for subsurface dud rounds (RMACCPMT, 1984, RIC#84034R01). Explosive chemicals contained within mortar shells should detonate upon impact leaving little or no contamination. Soil contamination from UXO is expected to be minimal at this site (Geraghty and Miller, 1982, RIC#81342R06).

Site 30-1 is suspected of being contaminated with organic, inorganic, and heavy metal contaminants, in addition to UXO (RMACCPMT, 1984, RIC#84034R01). The soil is believed to contain scrap metal fragments from 4.2-inch mortar impacts and 4.2-inch unexploded rounds which may contain high explosive (HE), white phosphorus (WP), smoke (FS) filler, or slugs (Wingfield, 1977, RIC#81266R68; Geraghty and Miller, 1982, RIC#81342R06).

The available aerial photographs (Stout et al., 1982, RIC#83368R01) may be summarized as follows:

Photograph Date	Description
October 21, 1948	Only the westernmost portion of the site is shown in this photograph. The photograph clearly shows a dirt road extending north from Eighth Avenue for approximately one-half mile, then turning east-northeast and eventually intersecting F Street. This road defines the western and northern margins of Site 30-1.
October 15, 1964	The road described above is still clearly visible in this photograph and the observation bunker is present. The access road to the demilitarization operation (Site 30-5) is now clearly visible, as are the trenches comprising Sites 30-6 and 30-7. A north-northeast dirt track leading from the observation bunker near the center of Site 30-1 to the vicinity of Site 30-6 is also visible in this photograph. A light-colored, small rectangular

area thought to be remains of a farming silo is clearly shown northeast of Site 30-5 and directly adjacent to F Street. Four light gray scars approximately 90 ft in diameter are visible in this photograph. Two scars are west and two are approximately 1,200 ft northwest of Site 30-6. The scars are not thought to be related to Site 30-1 activities. All of the scars are north of the designated site.

April 28, 1974

The dirt roads and tracks described in the 1964 photograph are still visible, although some are faint. The rectangular area of unknown origin northeast of Site 30-5 now appears to be a blackened, possible burn area. The sanitary landfill (Site 30-4) is clearly defined near the southwest corner of Site 30-1. The northwest portion of the site has a light-colored ground scar which may be related to impact craters located directly north.

September 20, 1980

The sanitary landfill (Site 30-4) has been expanded to the northwest and has obscured the north-south road which once defined the western margin of Site 30-1. Brackets are drawn on the photograph which distinguish the boundaries of the old and new landfills. The blackened area east-northeast of the demilitarization operation is still well-defined. Impact craters are now visible in the northwest quadrant of the site. Many impact craters are visible to the north and northwest of Site 30-5 as well. Two trenches oriented northwest-southeast are visible in the southwest portion of the site, east of the landfill access road.

December 31, 1985

A long, thin, apparently shallow excavation is west-northwest of the demilitarization operation in this photograph. Another similar excavation is 400 ft north of the observation bunker. Several eastwest linear berms are in the southeast quadrant of the site. The southwest portion of the site east of the landfill access road appears irregular and hilly.

The fact that many visible impact craters occur in the north-central part of the site does not fully correspond with the 1977 Records Evaluation Report (Wingfield, 1977, RIC#81266R68), which shows the impact range extending northeast across Section 30 and into Sections 19, 20, and 29. Mr. William

Moloney (Quality Assurance, RMA) has suggested that the impact range is north of the observation bunker (Figure 30-1-1) and doubts that the GB demilitarization facility (Site 30-5) would have been constructed on any part of the impact range. Windows in the observation bunker only face north and west; thus, it is unlikely that mortars were intentionally fired to the southern and eastern parts of Section 30, beyond the effective view of the observation bunker.

3.0 SITE_INVESTIGATION

3.1. PREVIOUS SOIL INVESTIGATIONS

The soil at Site 30-1 has been mapped by the U.S. Soil Conservation Service (Sampson and Baber, 1974) as Ascalon sandy loam, Ascalon-Vona sandy loam, and Platner loam. Ascalon soil is sandy loam containing varying amounts of sand and gravel which become clay-rich and calcareous with depth. Ascalon-Vona soil is somewhat sandier than Ascalon soil and is better drained. Soil of the Platner loam series is typically gray-brown, noncalcareous, silty loam which becomes more clay-rich and calcareous with depth. No previous soil contamination studies are documented for this site.

3.2 PHASE I SURVEY

3.2.1 Phase I Program

The Phase I program consisted of an extensive geophysical survey and a soil boring program which was intended to locate large-scale burial sites or anomalous soil conditions. Twenty-nine soil borings yielding 66 soil bedrock samples were drilled at an average spacing of 450 ft over this 7,219,000 ft² site. Twenty-one borings were drilled to a depth of 5 ft, and eight borings were drilled to 10 ft. Four borings (5334, 5335, 5341, and 5345) encountered claystone bedrock. The 29 Phase I borings were drilled as follows:

Boring_Number_	Depth_(ft)	Number_of_Samples
5325	5	2
5326	10	3
5327	5	2
5328	5	2
5329	5	2
5330	5	2
5331	5	2
5332	5	2
533 3	10	3
5334	10	3
5335	10	3
5336	5	2
5337	5	2
5338	5	2
5339	5	2
5340	5	2
5341	10	3

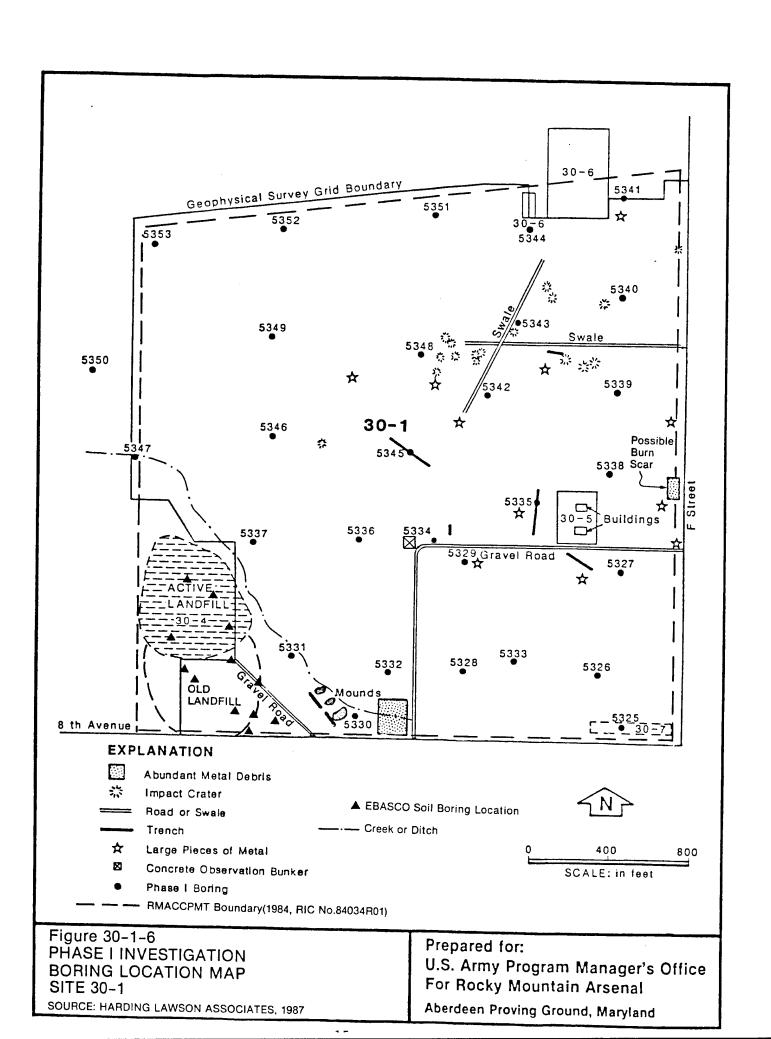
5342	5		2
5 343	5		2
5344	5		2
5345	10		3
5346	5		2
5347	5		2
5348	10		3
5349	5		2
5350	10		3
5351	5		2
5352	5		2
5353	5		2_
		TOTAL	66

During the geophysical investigation of this site, an anomalous response area was identified south of Site 30-4. This was determined to be the old Sanitary Landfill, and was referred to Task 7 for investigation. Six soil borings were placed in this area under Task 7.

The geophysical program at this site also indicated widespread magnetic and electromagnetic response on the eastern and northern portions of the site. Seven borings were drilled and a pit was dug to provide more information on the anomalous responses. Two surface sweeps for metal debris characterization were also conducted; one within the primary impact area and another in an area of abundant metal debris near Eighth Avenue.

Soil samples were collected using the continuous soil sampling method detailed in the Task 14 Technical Plan (ESE, 1986b, RIC #86238R04). Samples were obtained at predetermined intervals unless field conditions [i.e., water table, staining, etc.] required an adjustment in the intervals. No adjustment was required in intervals from Site 30-1 borings.

Boring locations, pertinent surficial objects, and historical features from aerial photographs have been combined and presented on the boring location map (Figure 30-1-6). Borehole sites were selected on the basis of visual evidence, historical reports, aerial photographs, and geophysical results. Boring 5325 was located within the boundaries of Site 30-7; all other borings were situated in Site 30-1.



Prior to drilling, all borehole sites were cleared for safety purposes in accordance with the geophysical program detailed in the Task 14 Technical Plan (ESE, 1986b, RIC#86238R04). Borehole site clearance was used to ensure drilling would not encounter buried UXO or other metal that could pose a significant safety risk. Magnetic intensity readings were obtained with a gradiometer. A 20-ft-square grid was centered at each boring location, and gradiometer readings were obtained at a spacing of 5 ft throughout the area. A contour map was prepared from the data and used to place the boring in the safest location within the geophysical plot. Following borehole clearance with the gradiometer, a metal detector was used to check for surficial (0 to 2 ft) metal which may have presented a safety risk. Twenty-two borings were relocated slightly due to borehole site clearance. This procedure should not be confused with the geophysical exploration program outlined in Section 3.2.3 of this report.

A photoionization detector (PID), calibrated to an isobutylene standard, was used to obtain readings from the open boreholes during drilling and from soil samples during geologic logging. The PID measures the concentration of organic vapors in the air and is a method of ensuring personnel safety.

All samples were analyzed by gas chromatography/mass spectrometry (GC/MS) for semivolatile organic compounds and by inductively-coupled argon plasma (ICP) analyses for cadmium, chromium, copper, lead, and zinc. All samples were analyzed for arsenic and mercury by atomic absorption (AA) spectroscopy. A GC/MS volatile organic analysis was performed on five samples from the 9- to 10-ft interval as follows: 5326, 5334, 5335, 5345, and 5348. A complete list of the Phase I analytes is in Appendix 30-1-A.

The Phase I remedial investigation program for this site was developed and implemented based on historical documentation, aerial photographs, and other information available at the time of its implementation. Since that time, previously unavailable information has been identified and incorporated into the history section of this report. Furthermore, this additional information has been evaluated in detail to determine how it might impact the investigation approach at this site. Based upon this evaluation, it has been determined that the additional information collected since the Phase I

and Phase II program was designed does not substantially alter the view of potential contamination at this site. As a result, the Phase I program as conducted and Phase II program as planned is judged to provide a complete and accurate investigation of the possible contamination at this site.

3.2.2 Phase I Field Observations

Several linear surface scars were noted at Site 30-1. Boring 5345 was drilled in a 175- by 30-ft-wide trench oriented northwest-southeast, Boring 5335 was also drilled in a trench, and Boring 5334 was drilled in a ditch beside a gravel road running east-west. No indications of disposal activity were present in any borehole sample from these trenches, nor were any surface indications of disposal noted. Boring 5347 was placed within a small drainage channel in the western portion of the site.

Several depressions (impact craters) were noted within the site (Figure 30-1-6). Most depressions were small and shallow (6 ft wide by 3 ft deep). A general field search in the northern part of the site near Borings 5345, 5348, 5342, and 5343 revealed an abundant number of small pieces of shrapnel associated with these impact craters. Most metal pieces were only 1 to 2 inches square in size, but occasionally they were 1 ft². Only a few pieces of shrapnel were found over a 3,000 ft² area along the northern site boundary approximately 1,000 ft west of Site 30-6. A second field search of a 2,300 ft² area was conducted within a broad zone of intense geophysical anomalies 300 ft southwest of Site 30-5. Only 20 small pieces of metal were found, most of which were 2- to 4-inch-long, pencil-shaped fragments. The quantity of metal in the general area southwest of Site 30-5 is estimated to be 5 to 10 times less than that found in the north-central portion of Site 30-1.

A 1-acre area within the primary impact area was staked and a surface sweep was conducted. Personnel with expertise in UXO identification recovered 14 fuzes, 20 blasting caps, two 40mm grenades, and 1 dud smoke grenade from the area. The items were stored in a magazine for future detonation. A second

surface sweep was conducted in an area of abundant metal debris near Eighth Avenue. Material identified in this area was innocuous scrap metal that did not warrant further investigation.

A 100- by 200-ft area along F Street was described as a possible burn scar by Stout et al. (1982, RIC#83368R01). A field search of this area revealed abundant pieces of red brick, building tile, and concrete. The June 4, 1978 Drawing D-748, "4.2 inch Mortar Range", and pre-Arsenal aerial photographs indicate this to be the location of an agricultural-use silo. The area contained scattered small cans and abundant metal, although there was no surface evidence to suggest burning occurred in this area. The red brick and tile are thought to be the silo remains. The area, as mapped by the geophysical field crew, contained abundant scattered metal (Figure 30-1-6).

Boring 5345 contained visible staining in the 9- to 10-ft interval. Green specks and spots were noted in this sample, but no unusual field readings were detected.

An M8 alarm and M18A2 test kit were used to detect the presence of chemical agents in boreholes and soil samples. The M8 alarm is used to detect GB (Sarin) and VX at detection levels of 0.2 and 0.4 milligrams per cubic meter (mg/m³) respectively, after a response time of 2 to 3 minutes (U.S. Army Materiel Development and Readiness Command (USAMDARC), 1982; USAMDARC, 1979; Headquarters-Department of the Army (HDOA), 1976]. However, many other substances, including smoke and engine exhaust, can activate the M8 alarm. The M18A2 is used as a backup test if an M8 alarm is triggered, as a substitute for an M8, and as a specific check for the presence of mustard. The M18A2 detects G agents, V agents, all forms of mustard, and Lewisite (L), based upon the knowledge that these agents were manufactured, stored, or demilitarized at the site (HDOA, 1976). The detection limit for mustard agents is 0.5 milligrams per cubic meter (mg/m³) and the detection for GB is 0.2 mg/m³. The detection limit for L in soil is 5 parts per million (ppm).

Historical evidence did not support further testing for chemical agents at this site. No positive tests or alarm activation occurred at this site. PID readings for this site were less than 2.3 and posed no risk to drilling personnel.

3.2.3 Geophysical Exploration

The two geophysical methods used in this Task 14 investigation included continuous magnetic surveying with a Ceonics G-866, which measures minute changes in the earth's magnetic field, and continuous electromagnetic (EM) surveying with a Geonics EM-31D, which measures both in-phase and out-of-phase EM response.

Geophysics is an indirect technique that measures the electrical/physical properties of an object or lithology. Geophysical anomalies may be related to buried metal or to lithologic variations and/or depth to bedrock. The correct interpretation of geophysical data is dependent upon experience and extensive site knowledge to identify anomalies induced by debris or contaminant plumes.

Within the limitations inherent in the methods, the geophysical data obtained in this investigation can be used to infer the presence of metals or chemical contamination. Whereas the magnetic technique is sensitive to the presence of ferrous metal, in-phase EM techniques can be used to detect both ferrous and nonferrous metal. Out-of-phase EM techniques provide information regarding bulk soil conductivity and the possible presence of chemical contamination.

The geophysical survey consisted of alternating magnetic and EM lines spaced 25 ft apart. Continuous geophysical readings were taken along each traverse and stored on computer tape. Three individual contour maps were generated from the magnetic, EM in-phase, and EM out-of-phase data. Areas of anomalous geophysical response were noted for each map and used to produce a geophysical results summary map.

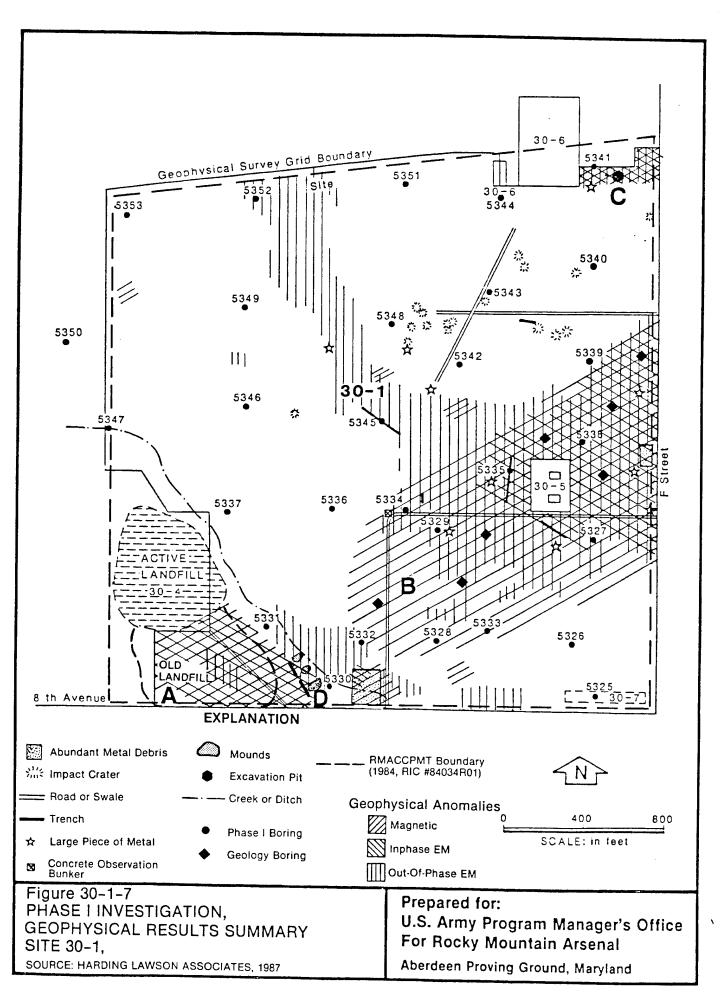
Results from the magnetometer and EM survey are summarized in Figure 30-1-7. The three major areas of magnetic anomalies and their locations are:

Anomaly A, southwest corner; Anomaly B, southeastern to eastern portion of the site; and Anomaly C, northeast corner. Anomaly A coincides with a very strong in-phase EM response and defines the old landfill. Anomaly B is defined by numerous magnetic anomalies; the eastern one-half to one-third portion of this anomaly also contains abundant in-phase EM anomalies. Seven borings drilled in this area were logged for geologic characteristics and revealed volcaniclastic material (indicative of bedrock) at depths from 3 to 10 ft. The magnetic and electromagnetic response are attributed to the Denver Formation bedrock. Anomaly C extends beyond the northern geophysical survey grid boundary and consists of strong magnetic, in-phase EM, and out-of-phase EM anomalies. Anomaly C was investigated by an excavation pit in which shallow volcaniclastic material was also identified.

The geophysical survey was designed to detect large accumulations of metal buried in trenches or pits. Widely scattered pieces of shrapnel associated with mortar impacts are not detectable. Because the scattered magnetic anomalies shown on Figure 30-1-7 are not supported by accompanying in-phase EM anomalies, these small isolated magnetic anomalies probably represent shallow metal debris or localized bedrock anomalies.

A large curving band of out-of-phase EM anomalies extends from the northern to the eastern geophysical survey grid boundary. These anomalies are thought to be related to soil texture and/or moisture content. A second area of out-of-phase EM anomalies occurs in the southwest corner of the site just northeast of the old landfill area. The strongest portion of this anomaly (D) appears to be related to two small trenches and mounds west of Borehole 5330. In-phase EM values are also anomalous in this area, but are related to both the old landfill location and the two trenches and mounds.

An out-of-phase EM anomaly coincides with the north-south oriented trench west of Site 30-5. Although this trench is within the curving out-of-phase EM anomaly described above, greater intensities were measured by all three geophysical techniques in the immediate vicinity of the trench.



3.2.4 Phase I Analyte Levels and Distribution

A statistical summary of Phase I analytical results is presented in Table 30-1-1. An analytical summary for each sample, including lithology and air monitoring results, is presented in Table 30-1-2. A listing of the target compounds and a tabulation of analytical data can be found in Appendices 30-1-A and 30-1-B.

To assess the significance of metal and organic analytical values, indicator ranges were established. For organic compounds, the indicator level is the method detection limit. For metals, a range of values was chosen to reflect the upper end of the normal range for each metal as naturally found in RMA alluvial soils. Selection of the ranges is discussed in the Introduction to the Contamination Assessment Reports (ESE, 1986a). Concentrations within and above indicator range for Phase I data are presented in Figure 30-1-8.

Most metal concentrations at this site are within their respective indicator ranges, except for samples near or from bedrock. Copper, zinc, and lead were the only metals found at concentrations exceeding their indicator ranges. Mercury was detected in two samples at 0.066 and 0.082 ppm, and arsenic was detected in 14 samples from 5.5 to 7.4 ppm. Cadmium was below the detection limit in all samples.

Six borings (5334, 5335, 5338, 5341, 5345, and 5352) contained metal concentrations above the indicator ranges. All six borings were situated in areas of high inferred soil conductivity and relatively shallow bedrock (Figure 30-1-7). Four of these borings (5334, 5335, 5341, and 5345) encountered weathered bedrock (volcaniclastics) at depths of 5- to 9-ft. Boring 5338 penetrated a stiff-textured silty clay horizon that may actually be weathered bedrock. The remaining boring (5352) contained brownish-clay silt, which may indicate a relatively higher organic content. The elevated organic content could be responsible for concentrating certain metals (Krauskopf, 1979). Target organic compounds were not detected in any of the 66 Phase I samples (Table 30-1-1).

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Table 30-1-1. Summary of Analytical Results for Site 30-1

					Concentrations (µg/g)	ns (μg/g)		
	Number					ESE	MRI	
	Jo				Standard	Detection	Detection	Indicator
Constituent	Samples*	Range	Mean	Median	Deviation	Limit	Limit	Range
Volatiles (N=5)†								
None Detected								70
Semivolatiles (N=66);								
None Detected								Ja
ICP Metals (N=66)†								
Cadmium	0	ŀ	!	1	!	0.90	0.50	DL-2.0
Chromium	23	8.1-25	15	16	3.8	7.2	7.4	25-40
Copper	99	5.8-58	17	14	7.6	8.4	6.4	20-35
Lead	36	20-41	28	28	5.2	17	16	25-40
Zinc	65	26-110	56	54	17	16	28	60-80
Arsenic (N=66)†	14	5.5-7.4	6.3	6.3	.54	. 1.4	5.2	DL-10
Mercury (N=66)†	2	0.066-0.082	;	;	ŀ	0.050	0.070	DL-0-10

* Number of samples in which constituent was detected above the detection limits.

1 N = Number of samples analyzed.

1 Not calculated for less than five detections.

DL Detection limit.

Source: ESE, 1987.

Table 30-1-2. Concentration of Target Analytes Above Detection Limits in Site 30-1 Soil Samples (Page 1 of 6)

Bore Number Depth (ft) Geologic Material	5325 0-1 Sandy Silt	5325 4-5 Sandy Silt	5326 0-1 Sandy Silt	5326 4-5 Sandy Silt	5326 9-10 Sandy Silt	5327 0-1 Sandy Silt	5327 4-5 Sandy Silt	5328 0-1 Sandy Silt	5328 4-5 Sandy Silt	5329 0-1 Sandy Silt	5329 4-5 Sandy Silt	5330 0-1 Sandy Silt	5330 4-5 Sandy Silt
AIR MONITORING PID*	BKD	BKD	ВКО	ВКД	ВКД	ВКО	ВКО	ВКБ	88.	BKD	ВКО	BKD	BKD
SOIL CHEMISTRY Volatiles (µg/g)	NA	N A	X A	X A	BDL	N A	Y Y	NA A	МA	¥	NA NA	Ϋ́	¥ z
Semivolatiles (µg/g) None Detected													
Metals (µg/g)													
Cadmium Chromium	BDL 20	BDL 14	BDL 19	BDL 17	BDL 9.4	8DL 16	RDL 13	BDL 17	BDL 14	BDL 18	BDL 9.9	RDL 14	BDL
Copper	32	12 20	34 75	13	8.2 BDL	16	13	13	9.1 BDL	14 29	29 32	10 26	31 BDL
Zinc	28	47	09	87	32	5.3	47	53	7,7	54	1.1	59	09
Arsenic (µg/g)	BDL	5.8	7.1	6.7	BDL	7.4	6.8	BDL	BDL	BDL	BDL	BOL	BDL
Mercury (µg/g)	BDL	RDI.	RDL	RDI.	RDL	BDL	RDL	RDL	BDL	BDL	RDL	BnL	BDL

Table 30-1-2. Concentration of Target Analytes Above Detection Limits in Site 30-1 Soil Samples (Page 2 of 6)

Bore Number Depth (ft) Geologic Material	5331 0-1 Slightly Sandy Silt	5331 4-5 Sandy Silt	5332 0-1 Slightly Sandy Silt	5332 4-5 Sandy Silt	5333 0-1 Clayey Silt	5333 4-5 Clayey Silt	5333 9-10 Clayey Silt	5334 0-1 Silty Sand	5334 4-5 Silty Sand	5334 9-10 Weathered Volcani- clastic (Denver Fm.)	5335 0-1 Sandy Silt	5335 4-5 Sandy Silt	5335 9-10 Weathered Claystone (Denver Fm.)
AIR MONITORING											į		
PID*	BKD	ВКD	BKD	BKD	ВКД	BKD	BKD	BKD	2.0	2.3	1.3	6.0	BKD
SOIL CHEMISTRY Volatiles (µg/g)													
	ΥN	Ą	NA	NA	NA	¥	NA NA	NA	NA	BDL	NA	Ą	BDL
Semivolatiles (µg/g)													
None Detected													
Metals (µg/g)													
Cadmium	BDL	BDL	BOL	BOL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Copper	12	17 20	19 21	16 19	18	21 14	82 - 2	12	B0L	36	15	BDL	BDL
Lead Zinc	BDL 42	8DL 55	BDL 66	8DL 50	32 50	34 61	28	07 708	BDL 26	30.8	20 20 20	32 83	31 84
Arsenic (mg/g)	BDL	BDL	BDL	TGB	BDL	6.4	5.5	BDL	BDL	BDL	5.9	BDL	8 D.L.
Mercury (µg/g)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BOL	BDL	BDL

Table 30-1-2. Concentration of Target Analytes Above Detection Limits in Site 30-1 Soil Samples (Page 3 of 6)

Bore Number Depth (ft) Geologic Material	5336 0-1 Slightly Clayey Silt	5336 4-5 Sandy Silt	5337 0-1 Sand	5337 4-5 Sandy Silt	5338 0-1 Sandy Silt	5338 4-5 Sandy Silt	5339 0-1 Sandy Silt	5339 4-5 Sandy Silt	5340 0-1 Sandy Silt	5340 4-5 Sandy Silt	5341 0-1 Sandy Silt	5341 4-5 Sandy W	5341 9-10 Weathered Volcani- clastic
AIR MONITORING	a C	c a	1 A	2	2 2 8	. 4	ŗ	4			<u> </u> 		
SOIL CHEMISTRY Volatiles (µg/g)				O N	BKO	BKD	· · ·	BKD	BKD	BKD	BKD	BKD	BKD
	NA	W	Ą	NA	NA N	Ϋ́	NA	NA	Ν	¥	NA	¥	
Semivolatiles (µg/g)													
None Detected													
Metals (pg/g)													
Cadmium Chromium Copper Lead Zinc	8DL 16 18 21 60	BDL 9.9 13 BDL 37	8DL 8DL 9.4 8DL 8DL	BDL 14 13 BDL 48	BDL 15 14 26 52	BDL BDL 15 29 88	BDL 18 15 30 58	BDL 16 15 28 56	BDL 18 14 32 56	BDL 16 14 28 56	BDL 21 24 BDL 69	BDL 12 51 8DL 110	BDL 13 58 26 89
Arsenic (µg/g)	BDL	BDL	BDL	BDL	5.3	BDL	BDL	BDL	BDL	6.3	BDL	BDL	BDL
Mercury (µg/g)	BDL	BDL	BDL	BDL	BDL	990.0	BDL	BDL	BDL	BDL	BDL	BOL	BOL

Table 30-1-2. Concentration of Target Analytes Above Detection Limits in Site 30-1 Soil Samples (Page 4 of 6)

Bore Number	5342	5342	5343	5343	5344	5344	5345	5345	5345	5346	5346	5347	5347
Depth (ft)	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5	9-10	0-1	4-5	0-1	4-5
Geologic Material	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	Weathered	Sandy	Sandy	Slightly	Clayey
	•		<u>;</u>			<u>:</u>	<u> </u>		clastic (Denver Fm.)	_		Silt	
AIR HONITORING													
PID*	BKD	BKD	вкр	BKD	BKD	BKD	вкр	BKD	1.3	7.0	ВКО	BKD	BKD
SOIL CHEMISTRY Volatiles (pg/g)													
	¥.	Ϋ́	V	¥	NA A	NA	NA	ž	BDL	NA NA	¥.	NA	W
Semivolatiles (µg/g)													
None Detected													
Metals (µg/g)													
Cadmium	JQB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chromium	61	7.6	16	·	20	19	16	BDL	BDL	의 :	01	9.6	16
Copper	21 BDL	12 BDL	20 26	0.7 BDL	31	20 BDL	708 BD L	301	26 BDL	PDF.	12 BDL	14 BDL	BDI.
Zinc	99	42	20	33	68	24	20	92	99	35	77	33	28
Arsenic (µg/g)	BDL	BDL	5.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Mercury (µg/g)	BDL	BOL	BDL	BDL	BDL	990.0	BDL	BDL	0.082	BDL	BDL	BDL	BDL

Table 30-1-2. Concentration of Target Analytes Above Detection Limits in Site 30-1 Soil Samples (Page 5 of 6)

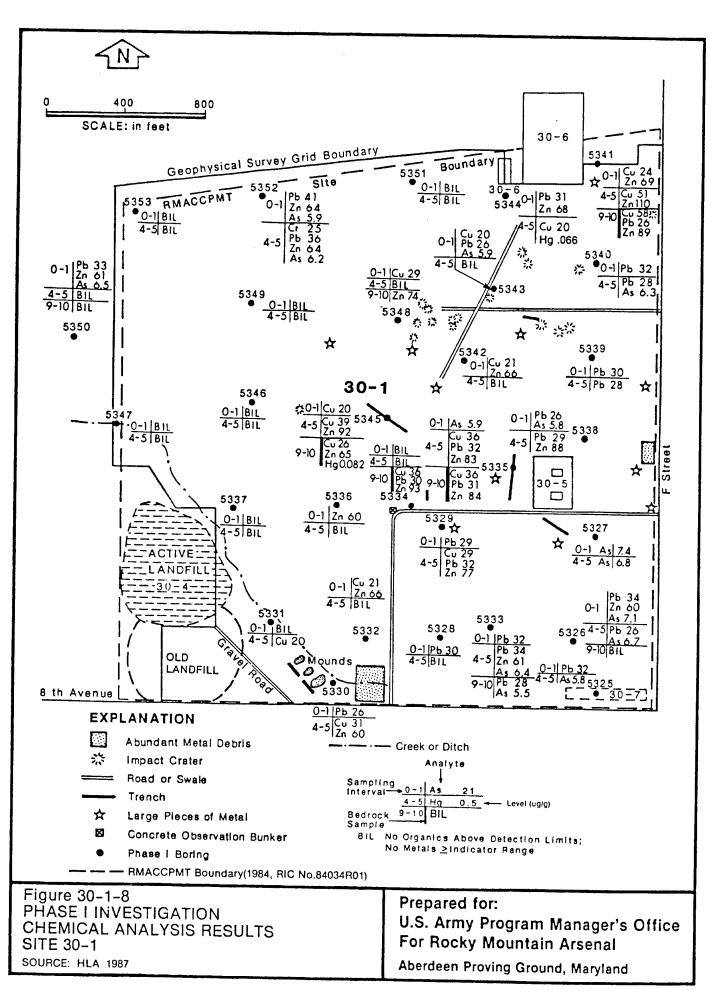
Bore Number Depth (ft)	5348 0-1	5348	5348 9-10	5349 0-1			5350 4-5	5350 9-10
Geologic Material	Sandy Silt	Sandy	Silty	Slightly Clayey Silt	Slightly Clayey Silt	Sandy	Sandy	Sandy Silt
AIR MONITORING								
PID*	BKD	BKD	BKD	BKD	BKD	1.1	вкр	ВКД
SOIL CHEMISTRY Volatiles (µg/g)								
	NA	N	BDL	NA	NA	NA	NA	NA
Semivolatiles (µg/g)								
None Detected								
Metals (µg/g)								
Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	RDL	BDL.
Chromium	17	11	7.6	15	14	22	14	
Copper	17	13	6.3	18	18	13	10	7.8
Lead Zinc	29 58	21 42	80L 74	8D L 59	20 20	33 61	21	8DL 32
Arsenic (µg/g)	BDL	BDL	BDL	BDL	BDL	6.5	BDL	BDL
Mercury (µg/g)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Table 30-1-2. Concentration of Target Analytes Above Detection Limits in Site 30-1 Soil Samples (Page 6 of 6)

	8DL 8DL 8DL 8DL 21 25 17 11 13 14 17 11 41 36 8DL 8DL 64 64 44 43 5.9 6.2 8DL 8DL
	BDL BDL 25 17 17 14 17 36 8DL 64 44 65.2 8DL
	5.9 6.2 BDL
BDL BDL 21 25 17 13 14 17 41 36 BDL 64 64 44	

As calibrated to an isobutylene standard.
No readings above ambient background.
Not analyzed.
Below detection limit. * BKD NA BDL

Source: ESE, 1987.



Several compounds were detected by GC/MS that were not included in the target compound list and that were not conclusively identified. Table 30-1-3 lists the boring number, sample interval depth, relative retention time (shown as "unknown number" on the table), concentration, sample number, lot best-fit identification, and comments for these nontarget compounds detected at Site 30-1. It should be noted that an individual compound may have more than one relative retention time and also that a particular retention time may be assigned to more than one compound. Therefore, Table 30-1-3 provides only a general indication of additional compounds that may be present.

Ninety-seven nontarget identifications were recorded and 45 sample intervals were found to contain nontarget compounds at concentrations ranging from 0.3 to 7 ppm. Most of these compounds were tentatively identified as naturally-occurring semivolatile organic compounds. Phthalates were detected in three samples, and oxybis ethanol (diethylene glycol) was detected in three others. Thirty-five nontargets were detected at low levels and could not be identified.

The nontarget data were reviewed and assessed with respect to the site's historical use. The compounds identified are attributable to naturally-occurring degradation products. The 2,2-(1,2 ethane diyl-bis) oxybis ethanol was the only exception. Oxybis ethanol (diethylene glycol) is a common component in antifreeze. Although this compound only occurred in Lot BMS, no positive identification of oxybis ethanol could be made from the method blank nontarget analysis. It should be noted, however, that all Task 14 borings where oxybis ethanol was detected were drilled in the winter months. In the field, antifreeze is put in the steam cleaner overnight during winter months, and bled out of the lines before decontamination procedures. It is thought that incomplete bleeding of the line contaminated drilling equipment with antifreeze, and likewise, samples from these borings. The remaining unknown compounds all occurred at low concentrations and are probably related to the natural environment rather than chemical contamination.

Table 30-1-3. Tentative Identification of Nontarget Compounds in Site 30-1 Soil Samples (Page 1 of 5)

Borehole	Interval	Unknown	Concentration Above Background	Sample			
Number	(ft)	Number	*(mdd)	Number	Lot	Best Fit	Commentst
5325	0-1	625	0.8	30-1-1	BMT	Phthalate	a.c.g.h
		626		30-1-1	BMT	Phthalate	a. d. s. h
		628	9.0	30-1-1	BMT	Phthalate	, c. c.
		631	0.5	30-1-1	BMT	Octadecanol	7
		634	0.4	30-1-1	BMT	Unknown	R
		636	9	30-1-1	BMT	Bis (2-ethyl-hexyl) phthalate	· O
		642	6.0	30-1-1	BMT	Unknown hydrocarbon	a, f, p, h
	5-7			30-1-2	BMU		
5326	0-1			30-1-12	BMO		
	4-5			30-1-13	BMU		-,
	9-10	027	3	30-1-14	BMU		
		614	2	30-1-14	вми	Dibutyl ester nonanedioic acid	₽
5327	0-1	615	7.0	30-1-23	BMT	Unknown	æ
		634	6.0	30-1-23	BMT	Unknown hydrocarbon	9.1.8
		642	9.0	30-1-23	BMT	Unknown	L TO
	4-5	642	0.4	30-1-24	BMT	Unknown	ı re
5328	0-1			30-1-34	BMU		
	5-7			30-1-35	вми		
5329	0-1	999	0.4	30-1-35	BMU	Unknown	Б
		909	0.4	30-1-35	BMU	Methyl ester hexadecanoic acid	d.f
	4-5	633	9.0	30-1-36	ВЖ	Unknown	, RD
5330	0-1	609	0.5	30-1-56	MPH	Hexadecanoic acid	~
		611	0.5	30-1-56	Her	Unknown hydrocarbon	a, d, f
		617	0.7	30-1-56	Ηdω	Unknown	e
		618	0.5	30-1-56	МРИ	Սոեռոս	c
		619	0.5	30-1-56	Η	Haknown	e.

Table 30-1-3. Tentative Identification of Nontarget Compounds in Site 30-1 Soil Samples (Page ? of 5)

	Interval		Concentration				
Borehole	Depth	Unknown	Above Background	Sample			
Number	(ft)	Number	*(mdd)	Number	Lot	Best Fit	Commentst
5330	0-1	628	0.8	30-1-57	MPH	Unknown	æ
		634	0.7	30-1-57	MPH	Unknown	a, f
		642	0.6	30-1-57	MPH	Unknown	a, f
		652	0.7	30-1-57	MPH	Unknown hydrocarbon	a, f
5330	5-7	634	-	30-1-57	МРН	Unknown hydrocarbon	re
		637	8.0	30-1-57	MPH	Bis (2-ethyl-hexyl) phthalate	c, f
5331	0-1	588	e	30-1-67	MPD	Diethyl phthalate	υ
	7-7	634	0.5	30-1-68	MPD	Unknown hydrocarbon	a, f
5332	0-1	634	6.0	30-1-78	MPE	Unknown hydrocarbon	a, f
	4-5	634	0.7	30-1-79	MPE	Unknown hydrocarbon	a, f
5333	0-1	620	0.4	30-1-89	BMV	Unknown	æ
		634	0.4	30-1-89	BMV	Unknown	æ
		642	0.3	30-1-89	BMV	Unknown	60
	4-5			30-1-90	BMV		
	9-10	614	2	30-1-91	вжи	Dibutyl ester nonanedioic acid	ъ
5334	0-1	634	0.4	30-1-100	BMT	Unknown hydrocarbon	a, f, g
		642	0.4	30-1-100	BMT	Unknown	rs
	4-5			30-1-101	BMT		
	9-10			30-1-102	BMT		
5335	0-1	582	0.4	30-1-111	BMS	Unknown	п
		614	9	30-1-111	BMS	Octadecanol	P
		615	7.0	30-1-111	BMS	Unknown	ę
		642	0.5	30-1-111	BMS	Unknown	ю
		650	0.5	30-1-111	BMS	Unknown	40

Table 30-1-3. Tentative Identification of Nontarget Compounds in Site 30-1 Soil Samples (Page 3 of 5)

5336 4-5 582 0.5 30-1-112 BMS 0.27' (1,2 Ethne diyl-bis) f 544 7 30-1-112 BMS Octadecanol d 5-10 552 0.5 30-1-112 BMS Octadecanol d 534 0.5 30-1-112 BMS Octadecanol d d 535 0.1 0.2 30-1-112 BMS Octadecanol d d 534 0.2 0.3 30-1-123 ME Disknoon hydrocarbon a,f d 5337 0.1 615 0.4 30-1-13 ME Disknoon hydrocarbon a,f 5336 0.1 30-1-13 ME Disknoon hydrocarbon a,f a,f 5336 0.1 30-1-13 ME Disknoon hydrocarbon a,f a,f 5336 0.1 30-1-13 ME Disknoon hydrocarbon a,f a,f 5336 0.1 4 30-1-14 MS Disknoon hydrocarbon <th>Borehole Number</th> <th>Interval Depth (ft)</th> <th>Unknown Number</th> <th>Concentration Above Background (ppm)*</th> <th>Sample Number</th> <th>Lot</th> <th>Best Fit</th> <th>Commentst</th>	Borehole Number	Interval Depth (ft)	Unknown Number	Concentration Above Background (ppm)*	Sample Number	Lot	Best Fit	Commentst
9-10 553 0.7-112 BMS octadecanol 523 0.5 30-1-112 BMS Unknown 524 0.5 30-1-113 BMS Unknown 525 0.5 30-1-113 BMS Unknown 624 0.5 30-1-123 BMS Unknown 624 0.6 30-1-123 MPE Unknown hydrocarbon 624 0.6 30-1-123 MPE Unknown hydrocarbon 624 0.6 30-1-124 BMS 2,1'(1,2 Ethane diyl-bia) 625 0.8 30-1-144 BMS 2,1'(1,2 Ethane diyl-bia) 625 0.8 30-1-144 BMS Unknown 624 0.6 30-1-144 BMS Unknown 624 0.5 30-1-144 BMS Unknown 625 0.6 30-1-144 BMS Unknown 626 0.6 30-1-144 BMS Unknown 627 0.6 30-1-144 BMS Unknown 628 0.6 30-1-145 BMS Unknown 629 0.7 30-1-155 BMS Unknown 620 0.6 30-1-155 BMS Unknown 620 0.6 30-1-155 BMS Unknown 621 0.6 30-1-155 BMS Unknown 622 0.7 30-1-155 BMS Unknown 623 0.7 30-1-155 BMS Unknown 624 0.5 30-1-155 BMS Unknown 625 0.6 30-1-155 BMS Unknown 626 0.6 30-1-155 BMS Unknown 627 0.6 30-1-156 BMS Unknown 628 0.6 30-1-156 BMS Unknown 629 0.7 30-1-156 BMS Unknown 620 0.7 30	5335	4-5	582	0.5	30-1-112	BMS	2,2' (1,2 Ethane diyl-bis)	
9-10 6514 0', 30-1-112 BMS Unknown 1			;	,			oxybis ethanol	44.
9-10 653 0.5 30-1-113 BMS Unknown 1-1 654 0.3 30-1-113 BMS Octadecanol 4-5 615 1. 30-1-12			914	,	30-1-112	SMS	Octadecanol	ט
9-10 550 0.5 30-1-113 BMS Represented acid control of 50 0.5 30-1-113 BMS Represented acid control of 51 0.3 30-1-113 BMS Represented acid control of 51 0.3 30-1-123 RME Unknown hydrocarbon control of 51 0.6 30-1-124 RMS Unknown hydrocarbon control of 52 0.4 30-1-144 BMS 2,2' (1,2 Ethane diy1-bis) control of 52 0.6 30-1-144 BMS 2,2' (1,2 Ethane diy1-bis) control of 52 0.6 30-1-144 BMS Unknown control of 52 0.6 30-1-155 BMS Unknown control of 52 0.7 30-1-156 BMS Unknown control of 5			623	0.5	30-1-112	BMS	Unknown	EQ
Control		9-10	550	0.5	30-1-113	BMS	Heptanoic acid	P
6-1 634 0.3 30-1-122 HPE Unknown hydrocarbon 4-5 613 1, 30-1-123 HPE Unknown hydrocarbon 6-1 634 1 30-1-123 HPE Unknown hydrocarbon 4-5 0.6 30-1-134 HPE Unknown hydrocarbon 6-1 582 0.4 30-1-144 HPS Unknown hydrocarbon 6-1 582 0.6 30-1-144 HPS Unknown 6-1 582 0.6 30-1-144 HPS Unknown 6-1 614 4 30-1-144 HPS Unknown 6-1 582 0.6 30-1-144 HPS Unknown 6-1 615 0.6 30-1-144 HPS Unknown 6-2 0.6 30-1-145 HPS Unknown 6-3 0.7 30-1-145 HPS Unknown 6-4 0.6 30-1-155 HPS Unknown 6-4 0.7 30-1-155 HPS Unknown 6-4 0.6 30-1-155 HPS Unknown 6-4 0.6 30-1-155 HPS Unknown hydrocarbon 6-4 0.6 30-1-155 HPS Unknown hydrocarbon 6-4 0.6 30-1-156 HPS Unknown hydrocarbon 6-4 0.6 30-1-156 HPS Unknown 6-4			614	2	30-1-113	BMS	Octadecanol	P
4-5 613 1 30-1-123 HPE Dibutyl nonanedioste 0-1 634 0.6 30-1-123 HPE Unknown hydrocarbon 4-5 6.4 1 30-1-134 HPG Unknown hydrocarbon 0-1 582 0.4 30-1-144 BMS Unknown hydrocarbon 614 4 30-1-144 BMS Unknown 615 0.6 30-1-144 BMS Unknown 614 4 30-1-144 BMS Unknown 615 0.6 30-1-144 BMS Unknown 614 2 30-1-144 BMS Unknown 642 0.6 30-1-144 BMS Unknown 642 0.6 30-1-154 BMS Unknown 643 0.6 30-1-155 BMS Unknown 562 0.6 30-1-155 BMS Unknown 563 0.7 30-1-155 BMS Unknown 614 0.6	5336	0-1	634	0.3	30-1-122	MPE	Unknown hydrocarbon	at at
0-1 634 0.6 30-1-123 HPB Unknown hydrocarbon 4-5 0.4 30-1-134 HPG Unknown hydrocarbon 0-1 562 0.4 30-1-144 BMS 0.71" (1,2 Ethane diyl-bia) 614 4 30-1-144 BMS 0.71" (1,2 Ethane diyl-bia) 615 0.6 30-1-144 BMS 0.72" (1,2 Ethane diyl-bia) 614 0.6 30-1-144 BMS Unknown 642 0.6 30-1-144 BMS Unknown 642 0.6 30-1-144 BMS Unknown 643 0.7 30-1-144 BMS Unknown 644 0.6 30-1-155 BMS Unknown 645 0.6 30-1-155 BMS Octadecanol 615 0.6 30-1-155 BMS Unknown hydrocarbon 642 0.6 30-1-155 BMS Unknown hydrocarbon 643 0.6 30-1-155 BMS Unknown hydrocarbon 644 0.6 30-1-156 BMS Unknown hydrocarbon 645 0.6 30-1-156 BMS Unknown hydrocarbon 647 0.6 30-1-156 BMS Unknown hydrocarbon 648 0.7 30-1-156 BMS Unknown hydrocarbon 649 0.7 30-1-156 BMS Unknown hydrocarbon 640 0.7 30-1-156 BMS Unknown hydrocarbon 641 0.6 30-1-156 BMS Unknown hydrocarbon 642 0.6 30-1-156 BMS Unknown hydrocarbon 643 0.7 30-1-156 BMS Unknown hydrocarbon 644 0.6 30-1-156 BMS Unknown hydrocarbon 645 0.7 30-1-156 BMS Unknown hydrocarbon 647 0.6 30-1-156 BMS Unknown hydrocarbon 648 0.7 30-1-156 BMS Unknown hydrocarbon 649 0.7 30-1-156 BMS Unknown hydrocarbon 640 0.7 30-1-156 BMS Unknown hydrocarbon 641 0.7 30-1-156 BMS Unknown hydrocarbon		5- 7	615	-	30-1-123	MPE	Dibutyl nonanedioate	
0-1 552 0.4 30-1-134 MPG Unknown hydrocarbon 4-5 562 0.4 30-1-144 BMS Unknown 6-1 6-1 4 30-1-144 BMS 0.xybis ethanol 6-1 6-1 4 30-1-144 BMS 0.xybis ethanol 6-1 6-1 4 30-1-144 BMS 0.xybis ethanol 6-1 6-2 0.5 30-1-144 BMS 0.nknown 6-2 0.6 30-1-144 BMS 0.nknown 6-2 0.6 30-1-144 BMS 0.nknown 6-1 5.2 30-1-144 BMS 0.nknown 6-1 5.2 30-1-155 BMS 0.nknown 6-1 5.2 30-1-155 BMS 0.nknown 6-1 5.2 30-1-155 BMS 0.nknown 6-1 6.0 30-1-155 BMS 0.nknown 6-1 5.2 30-1-155 BMS 0.nknown			634	9.0	30-1-123	HPE	Unknown hydrocarbon	a,f
4-5 30-1-134 HPG 0-1 562 0.4 30-1-144 BMS Unknown 614 4 30-1-144 BMS 0.7/10,2 Ethane diyl-bis) 615 0.6 30-1-144 BMS Unknown 624 0.6 30-1-144 BMS Unknown 6-5 30-1-144 BMS Unknown 6-7 0.6 30-1-145 BMS Unknown 0-1 559 0.4 30-1-155 BMS Unknown 562 0.6 30-1-155 BMS Unknown 6-1 559 0.4 30-1-155 BMS Unknown 6-1 56 0.9 30-1-155 BMS Unknown 6-1 582 0.9 30-1-155 BMS Octadecanol 6-1 582 0.9 30-1-155 BMS Unknown 6-1 5 30-1-155 BMS Unknown 6-1 6-1 30-1-155 BMS Unknown 6-2 0.6 30-1-155 BMS Unknown </td <td>5337</td> <td>0-1</td> <td>634</td> <td>1</td> <td>30-1-133</td> <td>MPG</td> <td>Unknown hydrocarbon</td> <td>হ</td>	5337	0-1	634	1	30-1-133	MPG	Unknown hydrocarbon	হ
0-1 562 0.4 30-144 BMS Unknown 6.1, (1,2 Ethane diyl-bis)		4-5			30-1-134	MPG		
582 0.8 30-1-144 BMS 2,2' (1,2 Ethane diyl-bia) 614 4 30-1-144 BMS Octadecanol 615 0.6 30-1-144 BMS Unknown 642 0.5 30-1-144 BMS Unknown 6-1 0.6 30-1-145 BMS Unknown 6-1 55 0.4 30-1-145 BMS Unknown 6-1 56 0.4 30-1-155 BMS Unknown 6-1 56 0.7 30-1-155 BMS Unknown 56 0.7 30-1-155 BMS Unknown 614 5 30-1-155 BMS Octadecanol 615 0.6 30-1-155 BMS Unknown 624 0.5 30-1-155 BMS Unknown 642 0.6 30-1-155 BMS Unknown 643 0.5 30-1-155 BMS Unknown 644 0.4 30-1-156 BMS	5338	0-1	562	4.0	30-1-144	BMS	Unknown	го
614 4 30-1-144 BMS Octadecanol 615 0.6 30-1-144 BMS Unknown 634 0.5 30-1-144 BMS Unknown 642 0.6 30-1-144 BMS Unknown 642 0.6 30-1-144 BMS Unknown 645 614 2 30-1-145 BMS Unknown 652 0.6 30-1-155 BMS Unknown 654 0.7 30-1-155 BMS Unknown 655 0.7 30-1-155 BMS Octadecanol 614 5 30-1-155 BMS Octadecanol 614 5 30-1-155 BMS Unknown hydrocarbon 642 0.6 30-1-155 BMS Octadecanol 643 0.5 30-1-155 BMS Unknown 644 0.6 30-1-155 BMS Unknown 645 0.6 30-1-155 BMS Octadecanol 646 0.6 30-1-155 BMS Unknown 647 0.6 30-1-156 BMS Unknown 648 0.6 30-1-156 BMS Unknown 649 0.6 30-1-156 BMS Unknown 640 0.6 30-1-156 BMS Unknown 641 4 30-1-156 BMS Unknown 642 0.6 30-1-156 BMS Unknown 643 0.4 30-1-166 BMS Octadecanol			582	8,0	30-1-144	BMS	2.2' (1.2 Ethane divl-bis)	
614 4 30-1-144 BMS Octadecanol 615 0.6 30-1-144 BMS Unknown 624 0.6 30-1-144 BMS Unknown 645 614 2 30-1-144 BMS Unknown 64 642 0.6 30-1-145 BMS Unknown 65 0.7 30-1-155 BMS Unknown 66 0.7 30-1-155 BMS Unknown 67 30-1-155 BMS Unknown 68 0.7 30-1-155 BMS Unknown 68 0.7 30-1-155 BMS Unknown 69 0.7 30-1-155 BMS Unknown 61 5 30-1-155 BMS Unknown 61 6 6 30-1-155 BMS Unknown 62 0.6 30-1-155 BMS Unknown 64 0.6 30-1-155 BMS Unknown 64 0.6 30-1-156 BMS Unknown 64 0.6 30-1-156 BMS Unknown 64 0.6 30-1-156 BMS Unknown 65 0.6 30-1-156 BMS Unknown 66 0.6 30-1-156 BMS Unknown 67 0.6 30-1-156 BMS Unknown 67 0.6 30-1-156 BMS Unknown 68 0.6 30-1-156 BMS Unknown 69 0.6 30-1-156 BMS Unknown 60 0.6 30-1-156 BMS Unkn							oxybis ethanol	ų
615 0.6 30-1-144 BMS Unknown 634 0.5 30-1-144 BMS Unknown 642 0.6 30-1-144 BMS Unknown 642 0.6 30-1-144 BMS Unknown 562 0.4 30-1-155 BMS Unknown 562 0.7 30-1-155 BMS Unknown 564 0.9 30-1-155 BMS Unknown 614 5 30-1-155 BMS Unknown 614 5 30-1-155 BMS Octadecanol 615 0.6 30-1-155 BMS Octadecanol 634 0.5 30-1-155 BMS Unknown 634 0.6 30-1-155 BMS Unknown 642 0.6 30-1-155 BMS Unknown 644 0.6 30-1-156 BMS Unknown 645 0.6 30-1-156 BMS Unknown 646 0.6 30-1-156 BMS Unknown 647 0.6 30-1-156 BMS Unknown 648 0.6 30-1-156 BMS Unknown 649 0.6 30-1-156 BMS Unknown 640 0.4 30-1-166 BMS Unknown 640 0.4 30-1-166 BMS Unknown 641 0.4 30-1-166 BMS Unknown 642 0.4 30-1-166 BMS Unknown 643 0.4 30-1-166 BMS Unknown 644 0.4 30-1-166 BMS Unknown 645 0.4 30-1-166 BMS Unknown 647 0.4 30-1-166 BMS Unknown 648 0.4 30-1-166 BMS Unknown 649 0.4 30-1-166 BMS Unknown 640 0.4 30-1-166 BMS Unknown 640 0.4 30-1-166 BMS Unknown 641 0.4 30-1-166 BMS Unknown 641 0.4 30-1-166 BMS Unknown 642 0.4 30-1-166 BMS Unknown 643 0.4 30-1-166 BMS Unknown 644 0.4 30-1-166 BMS Unknown 645 0.4 30-1-166 BMS Unknown 647 0.4 30-1-166 BMS Unknown 648 0.4 30-1-166 BMS Unknown 649 0.4 30-1-166 BMS Unknown 640 0.4 30-1			614	7	30-1-144	BMS	Octadecanol	ъ
634 0.5 30-1-144 BMS Unknown 642 0.6 30-1-144 BMS Unknown 642 0.6 30-1-145 BMS Unknown 6-1 559 0.4 30-1-155 BMS Unknown 566 0.7 30-1-155 BMS Unknown 566 0.7 30-1-155 BMS Unknown 614 5 30-1-155 BMS Unknown 614 5 30-1-155 BMS Octadecanol 615 0.6 30-1-155 BMS Unknown 634 0.5 30-1-155 BMS Unknown 642 0.6 30-1-155 BMS Unknown 642 0.6 30-1-156 BMS Unknown 642 0.6 30-1-156 BMS Unknown 644 0.5 30-1-156 BMS Unknown 645 0.6 30-1-156 BMS Unknown 646 0.6 30-1-156 BMS Unknown 657 0.6 30-1-156 BMS Unknown 658 0.6 30-1-156 BMS Unknown 659 0.6 30-1-156 BMS Unknown 650 0.6 30-1-156 BMS Unknown 650 0.6 30-1-156 BMS Unknown 651 0.6 30-1-156 BMS Unknown 651 0.6 30-1-156 BMS Unknown 652 0.6 30-1-156 BMS Unknown 653 0.6 30-1-156 BMS Unknown 654 0.6 30-1-156 BMS Unknown 655 0.6 30-1-156 BMS Unknown 656 0.7 30-1-156 BMS Unknown 657 0.6 30-1-156 BMS Unknown 658 0.6 30-1-156 BMS Unknown 659 0.6 30-1-156 BMS Unknown 650 0.6 30-1			615	9.0	30-1-144	BMS	Unknown	rd
4-5 642 0.6 30-1-144 BMS Unknown 4-5 614 2 30-1-145 BMS Octadecanol 0-1 559 0.4 30-1-155 BMS Unknown 562 0.6 30-1-155 BMS Unknown 566 0.7 30-1-155 BMS Unknown 614 5 30-1-155 BMS Octadecanol 615 0.6 30-1-155 BMS Ontadecanol 615 0.6 30-1-155 BMS Unknown 642 0.6 30-1-155 BMS Unknown 642 0.6 30-1-156 BMS Unknown 642 0.6 30-1-156 BMS Unknown 642 0.4 30-1-156 BMS Unknown 6-1 614 4 30-1-166 BMS Unknown 6-1 6-1 4 30-1-166 BMS Unknown			634	0.5	30-1-144	BMS	Unknown	œ
4-5 614 2 30-1-145 BMS Octadecanol 0-1 559 0.4 30-1-155 BMS Unknown 562 0.6 30-1-155 BMS Unknown 566 0.7 30-1-155 BMS Unknown 582 0.9 30-1-155 BMS Octadecanol 614 5 30-1-155 BMS Octadecanol 615 0.6 30-1-155 BMS Unknown 642 0.6 30-1-155 BMS Unknown 642 0.6 30-1-156 BMS Unknown 642 0.6 30-1-156 BMS Unknown 642 0.6 30-1-156 BMS Unknown 643 0.4 30-1-166 BMS Unknown 642 0.4 30-1-166 BMS Unknown 643 0.4 30-1-166 BMS Unknown			642	9.0	30-1-144	BMS	Unknown	æ
0-1 559 0.4 30-1-155 BMS Unknown 562 0.6 30-1-155 BMS Unknown 566 0.7 30-1-155 BMS Unknown 582 0.9 30-1-155 BMS 2,2,1 (1,2 Ethane diyl bis) 614 5 30-1-155 BMS Octadecanol 615 0.6 30-1-155 BMS Octadecanol 634 0.5 30-1-155 BMS Unknown 642 0.6 30-1-156 BMS Unknown 642 0.4 30-1-156 BMS Unknown 6-1 614 2 30-1-166 BMS Unknown 6-1 642 0.4 30-1-166 BMS Unknown 6-1 614 2 30-1-166 BMS Unknown		4-5	614	2	30-1-145	BMS	Octadecanol	P
562 0.6 30-1-155 BMS Unknown 566 0.7 30-1-155 BMS Nonanoic acid 582 0.9 30-1-155 BMS Nonanoic acid 614 5 30-1-155 BMS Octadecanol 615 0.6 30-1-155 BMS Octadecanol 642 0.6 30-1-155 BMS Unknown 642 0.6 30-1-155 BMS Unknown 642 0.4 30-1-156 BMS Unknown 6-1 614 4 30-1-156 BMS Unknown 6-2 0.4 30-1-166 BMS Octadecanol 6-3 0.4 30-1-166 BMS Unknown	5339	0-1	559	7.0	30-1-155	BMS	Unknown	60
566 0.7 30-1-155 BMS Nonanoic acid 582 0.9 30-1-155 BMS 2,2' (1,2 Ethane diyl bis) 614 5 30-1-155 BMS 0ctadecanol 615 0.6 30-1-155 BMS 0ctadecanol 634 0.5 30-1-155 BMS Unknown 642 0.6 30-1-156 BMS Unknown 642 0.4 30-1-156 BMS Unknown 6-1 614 2 30-1-166 BMS Unknown 6-1 614 2 30-1-166 BMS Unknown			562	9.0	30-1-155	BMS	Unknown	æ
582 0.9 30-1-155 BMS 2,2'(1,2 Ethane diyl bis) 614 5 30-1-155 BMS 0xybis ethanol 615 0.6 30-1-155 BMS 0ctadecanol 634 0.5 30-1-155 BMS 0nknown 4-5 614 4 30-1-156 BMS 0nknown 6-1 642 0.4 30-1-156 BMS 0nknown 6-2 0.4 30-1-156 BMS 0ctadecanol 6-1 642 0.4 30-1-166 BMS 0ctadecanol 6-1 642 0.4 30-1-166 BMS 0ctadecanol 6-1 6-1 6-1 6-1 6-1 6-1			999	0.7	30-1-155	BMS	Nonanoic acid	P
614 5 30-1-155 BMS Octadecanol 615 0.6 30-1-155 BMS Octadecanol 634 0.5 30-1-155 BMS Unknown 642 0.6 30-1-155 BMS Unknown 642 0.6 30-1-155 BMS Unknown 644 4 30-1-156 BMS Unknown 642 0.4 30-1-156 BMS Unknown 642 0.4 30-1-156 BMS Unknown 644 0.4 30-1-166 BMS Octadecanol 645 0.4 31-1-166 BMS Unknown by drogery and a second and a se			582	6.0	30-1-155	BMS	2,2' (1,2 Ethane diyl bis)	
614 5 30-1-155 BMS Octadecanol 615 0.6 30-1-155 BMS Octadecanol 634 0.6 30-1-155 BMS Octadecanol 642 0.6 30-1-155 BMS Unknown hydrocarbon 642 0.6 30-1-156 BMS Unknown 642 0.4 30-1-156 BMS Octadecanol 642 0.4 30-1-166 BMS Octadecanol 634 2 30-1-166 BMS Unknown hydrocarbon 634 2 30-1-166 BMS Unknown hydrocarbon 634 2 30-1-166 BMS Unknown hydrocarbon							oxybis ethanol	#
615 0.6 30-1-155 BMS Octadecanol 634 0.5 30-1-155 BMS Unknown hydrocarbon 642 0.6 30-1-155 BMS Unknown 4-5 614 4 30-1-156 BMS Octadecanol 642 0.4 30-1-156 BMS Octadecanol 644 2 30-1-166 BMS Octadecanol 634 7 30-1-166 BMS Inknown hydrocarbon 634 7 30-1-166 BMS Inknown hydrocarbon			719	5	30-1-155	BMS	Octadecanol	ď
634 0.5 30-1-155 BMS Unknown hydrocarbon 642 0.6 30-1-155 BMS Unknown 4 30-1-156 BMS Octadecanol 642 0.4 30-1-156 BMS Unknown 614 2 30-1-166 BMS Octadecanol 634 0.5 30-1-166 BMS Unknown hydrocarbon			615	9.0	30-1-155	BMS	Octadecanol	ъ
642 0.6 30-1-155 BMS Unknown 4-5 614 4 30-1-156 BMS Octadecanol 642 0.4 30-1-156 BMS Unknown 0-1 614 2 30-1-166 BMS Octadecanol 634 7 31-1-166 BMS Inknown hydroachon			634	0.5	30-1-155	BMS	Unknown hydrocarbon	a,f
4-5 614 4 30-1-156 BMS Octadecanol 642 0.4 30-1-156 BMS Unknown 0-1 614 2 30-1-166 BMS Octadecanol 634 0 30-1-166 BMS Inknown hydroaebon			642	9.0	30-1-155	BMS	Unknown	eg.
642 0.4 30-1-156 BMS Unknown 0-1 614 2 30-1-166 BMS Octadecanol 634 0 5 30-1-166 BMS Inknown hydroaeban		4-5	614	7	30-1-156	BMS	Octadecanol	P
0-1 614 2 30-1-166 BMS Octadecanol 614 70-1-166 BMS Inknown hydrosekon			642	0.4	30-1-156	BMS	Unknown	65
61, 0 5 30-1-166 RMS Highmoun hydrocarbon	5340	0-1	614	2	30-1-166	BMS	Octadecanol	-
			,,,,	· ·	30-1-166	M.	Habraca hydrocarbon	, ",

Table 30-1-3. Tentative Identification of Nontarget Compounds in Site 30-1 Soil Samples (Page 4 of 5)

Borehole Number	Interval Depth (ft)	Unknown Number	Concentration Above Background (ppm)*	Sample Number	Lot	Best Fit	Commentst
5340	4-5	614	2 0.6	30-1-167	BMS	Octadecanol Unknown hydrocarbon	ب ئ ص
5341	0-1 4-5 9-10	615 615	3	30-1-177 30-1-178 30-1-179	мрв МРВ МРВ	Dibutyl nonanedioate Unknown hydrocarbon	· ·n··· ·n···· ·n·····················
5342	0-1 4-5	634 634	6.0 0.0	30-1-188 30-1-189	MPG MPG	Unknown hydrocarbon Unknown hydrocarbon	ייה הי ני עם
5343	0-1	642 650 614 633	8.0 4.0 6.0	30-1-199 30-1-199 30-1-200 30-1-200	BMS BMS BMS BMS	Unknown Unknown Octadecanol Unknown	ס טייס מ
5344	0-1	582	6.0	30~1~210 30~1~211	MPB MPB	Unknown hydrocarbon	44
5345	0-1 4-5 9-10	634 634	0.7	30-1-271 30-1-222 30-1-223	MPH MPG MPG	Unknown hydrocarbon Unknown hydrocarbon	. a
5346	0-1 4-5	615	0.4	30-1-232 30-1-233	мрн МРн	Dibutyl nonanedioate	p
5347	0-1 4-5	. 635 634	0.8	30-1-243 30-1-244	MPE	Unknown hydrocarbon Unknown hydrocarbon	4. 4. 6 6
5348	0-1			30-1-254	MPB MPB		·= ·=

Table 30-1-3. Tentative Identification of Nontarget Compounds in Site 30-1 Soil Samples (Page 5 of 5)

	Interval		Concentration				
Borehole Number	Depth (ft)	Unknown Number	Above Background (ppm)*	Sample Number	Lot	Best Fit	Commentst
5348	9-10	760	0.2	30-1-256	MLS	Unknown hydrocarbon	a, f
		615		30-1-256	MLS	Dibutyl nonanedioate	P
5349	0-1	635		30-1-265	MPE	Unknown hydrocarbon	ro
	4-5			30-1-266	MPE		
5350	0-1			30-1-276	BMU		.,
	4-5			30-1-277	BMU		
	9-10	614	7.0	30-1-278	BMU	Unknown	e
5351	0-1			30-1-287	BMT		, p
	4-5	633	7.0	30-1-288	BMT	Unknown	60
5352	0-1	642	0.4	30-1-298	ВМV	Unknown	eg
	5-7	879	7.0	30-1-299	ВМУ	Unknown	es
5353	0-1			30-1-309	MPH		,-
	4-5	634		30-1-310	MPG	Unknown hydrocarbon	æ

* Values reported are blank corrected.

1 a. No positive identification.

b. Surfactant.

c. Plasticizer (note: All phthalates and adipates will have this comment).

d. Derived from natural products.

e. Suspected laboratory contaminant.

f. Low concentration.

g. Low frequency of occurrence.

h. Ubjquitous.

i. Possible column bleed.

j. None detected.

Source: ESE, 1987.

Although two of six borings (5335 and 5345) were in trenches suspected of containing contamination, only Sample 5345 (9- to 10-ft) was visibly stained with green specks and spots. Copper, zinc, and mercury were detected in this sample at concentrations within their respective indicator ranges. Many other samples with no visible discoloration contained similar metal values.

3.2.5 Phase I Contamination Assessment

A significant portion of Site 30-1 is underlain by relatively shallow (6- to 9-ft) bedrock which influenced metal concentration values in 4- to 5- and 9- to 10-ft sample intervals. Bedrock (Denver Formation) samples usually displayed copper, zinc, and other metals at concentrations within and above their indicator range depending on lithology. Consequently, metal values from deep samples must be evaluated with regard to lithologic variations. It should be noted that established indicator ranges are based on metal values for surficial alluvium (0- to 5-ft) and do not necessarily reflect geochemical variations between alluvial and bedrock environments. Except for an elevated lead value in the 0- to 1-ft interval of Borehole 5352, 4- to 5- and 9- to 10-ft are the only other intervals where metal values were detected above the indicator ranges.

Copper, lead, and zinc were detected at levels above their indicator ranges in 13 samples (6 boreholes) collected within or slightly above the weathered or slightly reworked bedrock zone or within a brown silty-clay horizon. These six borings are located within the broad curving band of out-of-phase EM anomalies. This conductivity band is represented by shallow (<10 ft) volcaniclastic bedrock, as evidenced by seven borings logged for geologic horizons. The presence of shallow bedrock is further indicated by several Site 30-5 Phase I borings that encountered bedrock at 3- to 4-ft (Figure 30-1-6), and borings from Site 30-6 which displayed similar geochemical patterns.

Boring 5345 was noted to contain green specks in the 9- to 10-ft sample. The cause of this green coloration was not determined; however, metal concentrations were within or below indicator level for this bedrock sample. No volatile or semivolatile compounds were detected in this sample.

The north-south oriented trench containing Boring 5335 is within a widespread magnetic and electromagnetic anomaly. No geophysical response was directly related to the trench, and Boring 5335 contained metal concentrations indicative of shallow bedrock rather than trench disposal.

A possible burn area was noted by Stout et al. (1982, RIC#83368R01) in their aerial photograph interpretation of the eastern site boundary. This area corresponds to an area of scattered metal debris, scattered clay building tiles, and bricks. Historical information indicates an agricultural use silo once stood at this location, and the debris is thought to be the result of its demolition. A Phase II boring is suggested to provide more information on activity at this location.

A pit was excavated at geophysical Anomaly C to explain the intense magnetic and electro-magnetic response. Geologists logging the pit identified bedrock at 8 ft, and no evidence of disposal activity was observed. A trench cut across a similar anomaly in Site 30-6 also identified shallow bedrock as cause for the geophysical responses. No further investigation is required in this area.

Geophysical results for the trenches just west of Boring 5330 (Anomaly D, Figure 30-1-7) strongly suggest the presence of buried metal debris. Some of the highest in-phase and out-of-phase EM values in Site 30-1 were found in this area. The mounds associated with these trenches are outside the area of high magnetic and in-phase intensities, and no visible evidence of debris is present. Bedrock influences for Anomaly D are probably insignificant relative to Anomalies B and C. Additional borings in these trenches are suggested on the basis of the geophysical response and observed debris in and around Anomaly D. The mounds east of the trenches display no discrete geophysical response and contain no visible debris or indication of contamination. The mounds are most likely the original excavation material and do not warrant further investigation

A large area underlain by volcaniclastic material in the bedrock was delineated by the magnetic technique and, to a lesser degree, by in-phase EM. This area (Anomaly B) extends east of the site boundary into the southwestern portion of Site 29-4. The elevated copper, lead, and zinc values found in samples from this anomaly are related to the erratic deposition of metals caused by the weathering and reworking of the Denver Formation.

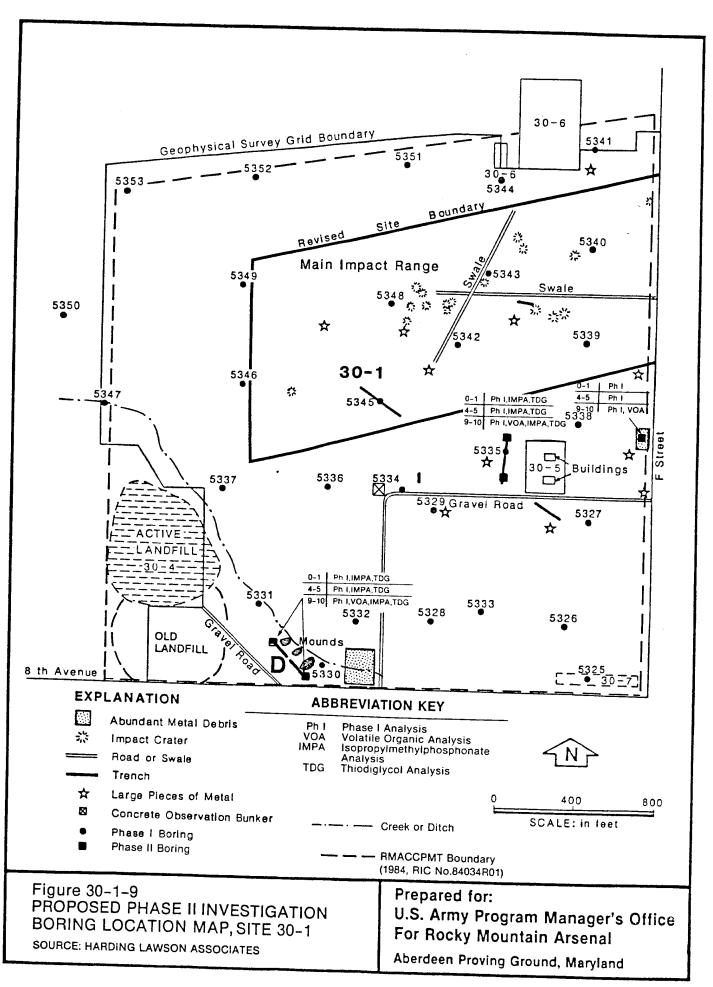
The following three areas at Site 30-1 have not been fully explored or defined by the Phase I investigation. A Phase II investigation is warranted for these areas:

- o Geophysical Anomaly D, which is centered on the trenches in the south - central portion of the site;
- o The trench investigated by Boring 5335; and
- The small area of demolition and metal debris identified as a burn scar along the eastern site boundary.

3.3 PHASE II SURVEY

A Phase II program will be conducted at this site to examine the following three areas:

- Two 10 ft borings will investigate geophysical Anomaly D for any chemical compounds related to the strong geophysical anomalies in the two trenches. Samples will be taken from the intervals of 0 to 1, 4 to 5, and 9 to 10 ft and analyzed for the Phase I suite of analytes. An isopropylmethyl phosphonate (IMPA) and thiodiglycol (TDG) analysis will be conducted on all samples to test for Army agent degradation products. The deepest interval will also be analyzed for volatile organic compounds, or in other intervals as necessitated by field conditions;
- The trench investigated by Boring 5335 will be investigated by two additional borings: one placed to the north and one placed south of Boring 5335 (Figure 30-1-9). These 10 ft borings will be sampled at the intervals of 0 to 1. 4 to 5, and 0 to 10 ft and analyzed for the Phase I suite. An IMPA and TDG analysis will also be conducted on all samples to test for Army agent degradation products. Volatile organic compounds will be analyzed on the deepest interval in each boring and in samples as necessitated by field conditions: and



A possible burn area noted by Stout et al. (1982, RIC#83368R01) and mapped by geophysicists as an area of abundant surface metal (Figure 30-1-7) will be investigated by a single 10-ft boring with the intervals of 0 to 1, 4 to 5, and 9 to 10 ft analyzed for Phase I analytes. This area is thought to be the demolition remains of a farming silo based on historical information and visual inspection. The deepest sample interval from this boring will also be analyzed for volatile organic compounds.

In summary, 5 borings (20 samples) are recommended for the Phase II program. Following this program, site boundaries will be further modified and new volume/area estimates will be calculated.

Comments on the draft final version of this report were received from Shell Chemical Company on July 1, 1987 and from Colorado Department of Health on October 27, 1987. Additional comments were received from the U.S. Environmental Protection Agency on October 29, 1987. These comments were considered in the preparation of this final report and are presented with responses in Appendix 30-1-C.

3.4 QUANTITY OF POTENTIALLY CONTAMINATED SOIL

The Decontamination Assessment Report (RMACCPMT, 1984, RIC#84034R01) outlined a hypothetical cleanup strategy for Site 30-1. The plan called for the excavation and removal of 241,000 bank cubic yards (bcy) of material. The estimated depth of excavation was 6 ft. UXO and contaminated soil were assumed to account for 0.1 and 15 percent of the total volume. respectively (RMACCPMT, 1984, RIC#84034R01).

Phase I field observations suggest that a large part of Site 30-1 is affected by metal associated with mortar impacts. Metal debris is thought to be less abundant outside the primary impact area. The main impact range should include a relatively small amount of potentially contaminated soil

relative to its overall size; nevertheless, excavation will be necessary to remove buried mortar fragments and/or UXO. Although the volume of fragments and UXO is probably small (i.e.; a few cubic yards), a significant amount of soil would have to be screened to find it.

The areal extent of the geophysical anomaly, trench, and burn scar have been estimated as 10,500, 7,000, and $20,000 \, \mathrm{ft}^2$, respectively. Assuming a 6-ft depth, the volume of potentially contaminated soils for these areas is $8,400 \, \mathrm{bcy}$.

The revised site boundary for the main impact range is shown in Figure 30-1-9. This area occupies $2,100,000~\rm{ft}^2$ and is estimated to contain $70,000~\rm{bcy}$ of hazardous waste and $470~\rm{bcy}$ of UXO, on the basis of a 6-ft excavation depth and criteria in the Decontamination Assessment Report (RMACCPMT, 1984, RIC#84034R01). These estimates are speculative and will remain so until further information is available on the type, quantity, and depth of potentially contaminated debris.

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PHASE_I_ANALYTES_AND_CERTIFIED_METHODS

	Synonymous Names	Standard
Analytes/Methods	and_Abbreviations	Abbreviations
VOLATILE ORGANIC COMPOUNDS/GCMS	VOL	٧٥ .
1,1-Dichloroethane	1,1-Dichloroethane	BIDCLE
1,2-Dichloroethane	1,2-Dichloroethane	12DCLE
1,1,1-Trichloroethane (TCA)	1,1,1-Trichloroethane	111TCE
1,1,2-Trichloroethane	1,1,2-Trichloroethane	112TCE
Benzene	Benzene	С ₆ н ₆
Bicycloheptadiene	Bicycloheptadiene (BCHD)	BCHPD
Carbon tetrachloride	Carbon tetrachloride	CCL4
Chlorobenzene	Chlorobenzene	CLC6H5
Chloroform	Chloroform	CHCĽ3
Dibromochloropropane	Dibromochloropropane	DBCP
Dicyclopentadiene	Dicyclopentadiene	DCPD
Dimethyldisulfide	Dimethyldisulfide	DMDS
Et hy l benzene	Ethylbenzene	ETC ₆ H ₅
m-Xylene	meta-Xylene	13DMB
Methylene chloride	Methylene chloride	CH ₂ CL ₂
Methylisobutyl ketone	Methylisobutyl ketone	MIBK
o,p-Xylene	ortho- and/or para-Xylene	XYLEN
Tetrachloroethene (PCE)	Tetrachloroethylene	TCLEE
Toluene	Toluene	MEC ₆ H ₅
Trans 1,2-dichloroethene	Trans 1,2-dichloroethylene	12DCE
Trichloroethene (TCE)	Trichloroethylene	TRCLE
SEMIVOLATILE ORGANIC COMPOUNDS/GCMS	EXTRACTABLE ORGANIC COMPOUNDS (EX) SVO
1,4-0xathiane	1,4-Oxathiane	OXAT
2,2-Bis (para-chlorophenyl)-		
1,1-dichloroethane	Dichlorodiphenylethane	PPDDE
2,2-Bis (para-chlorophenyl)		
1,1,1-trichloroethane	Dichlorodiphenyltrichloroethane	PPDDT
Aldrin	Aldrin	ALDRN
Atrazine	Atrazine	ATZ
Chlordane	Chlordane	CLDAN
Chlorophenylmethyl sulfide	p-Chlorophenylmethyl sulfide	CPMS
Chlorophenylmethyl sulfoxide	p-Chlorophenylmethyl sulfoxide	CPMSO
Chlorophenylmethyl sulfone	p-Chlorophenylmethyl sulfone	CPMSO ₂
Dibromochloropropane	Dibromochloropropane	DBCP
Dicyclopentadiene	Dicyclopentadiene	DCPD
Dieldrin	Dieldrin	DLDRN
Diisopropylmethyl phosphonate	Diisopropylmethyl phosphonate	DIMP

Analytes/Methods	Synonymous Namesaud_Abbreviations	Standard Abbreviations
SEMIVOLATILE ORGANIC COMPOUNDS (CONT) Dimethylmethyl phosphonate Dithiane Endrin Hexachlorocyclopentadiene Isodrin	Dimethylmethyl phosphonate Dithiane Endrin Hexachlorocyclopentadiene (HCPD) Isodrin	DMMP DITH ENDRN CL ₆ CP ISODR
Malathion Parathion Supona Vapona	Malathion Parathion 2-Chloro-1(2,4-dichlorophenyl) vinyldiethyl phosphate Vapona	MI.TIIN PRTIIN SUPONA DDVP
METALS/ICP Cadmium Chromium Copper Lead Zinc	ICAP Cadmium Chromium Copper Lead Zinc	JCP CD CR CU PB ZN
SEPARATE ANALYSES Arsenic/AA Mercury/AA	Arsenic Mercury	AS HG

PHASE_II_ANALYTES_AND_CERTIFIED_METHODS

A==1-4== /M=+4=1	Synonymous Names	Standard
Analytes/Methods	and_Abbreviations	Abbreviations
VOLATILE ORGANIC COMPOUNDS/GCMS (Same as Phase I)	VOL	vo
SEMIVOLATILE ORGANIC COMPOUNDS/GCMS (Same as Phase I)	EXTRACTABLE ORGANIC COMPOUNDS (EX)	SVO
VOLATILE HALOCARBON COMPOUNDS/GCCON	PURGEABLE HALOCARBONS (PHC)	VHO
1,1-Dichloroethane	1,1-Dichloroethane	11DCLE
1,2-Dichloroethane	1,2-Dichloroethane	12DCLE
1,1-Dichloroethene	1,1-Dichloroethene	11DCE
1,1,1-Trichloroethane (TCA)	1,1,1-Trichloroethane	111TCE
1,1,2-Trichloroethane	1,1,2-Trichloroethane	112TCE
Carbon tetrachloride	Carbon tetrachloride	CCL4
Chlorobenzene	Chlorobenzene	СLC ₆ H ₅
Chloroform	Chloroform	CHCL3
Methylene chloride	Methylene chloride	CH ₂ CL ₂
Trans 1,2-dichloroethylene	Trans 1,2-dichloroethene	12DCE
Tetrachloroethene (PCE)	Tetrachloroethylene	TCLEE
Trichloroethene (TCE)	Trichloroethylene	TRCLE
VOLATILE HYDROCARBON COMPOUNDS/GCFID	DCPD	HYDCBN
Bicycloheptadiene	Bicycloheptadiene (BCHD)	BCHPD
Dicyclopentadiene	Dicyclopentadiene	DCPD
Methylisobutyl ketone	Methylisobutyl ketone	MIBK
VOLATILE AROMATIC COMPOUNDS/GCPID	PURGEABLE AROMATICS (PAM)	VAO
Benzene	Benzene	
Ethylbenzene	Ethylbenzene	С ₆ н ₆
m-Xylene	meta-Xylene	ETC ₆ H ₅ 13DMB
o,p-Xylene	ortho- and/or para-Xylene	XYLEN
Toluene	Toluene	MEC ₆ H ₅
ORGANICAL OPENS		2065
ORGANOCHLORINE PESTICIDES/GCEC		OCP
2,2-Bis (para-chloropheny1)-		
1,1-dichloroethane	Dichlorodiphenylethane	PPDDE
2,2-Bis (para-chlorophenyl)-		
1,1,1-trichloreoethane	Dichlorodiphenyltrichloroethane	PPDDT
Aldrin	Aldrin	ALDRN
Chlordane	Chlordane	CLDAN
Dieldrin	Dieldrin	DLDRN
Endrin	Endrin	ENDRN
Hexachlorocyclopentadiene	Hexachlorocyclopentadiene	CL ₆ CP
Isodrin	Isodrin	ISODR

$\begin{array}{c} \text{APPENDIX } 30\text{--}1\text{--A} \\ \text{CHEMICAL NAMES, METHODS, AND ABBREVIATIONS} \end{array}$

Analus as /Mashada	Synonymous Names	Standard
Analytes/Methods	and_Abbreviations	Abbreviations
ORGANOPHOSPHOROUS PESTICIDES/GCNPD	ORGANOPHOSPHOROUS COMPOUNDS (OPC)	OPP
Atrazine	Atrazine	ATZ
Malathion	Malathion	MLTHN
Parathion	Parathion	PRTHN
Supona	<pre>2-Chloro-1(2,4-dichlorophenyl) vinyldiethyl phosphate</pre>	SUPONA
Vapona	Vapona	DDVP
ORGANOPHOSPHOROUS COMPOUNDS/GCFPD	DIMP	OPC
Diisopropylmethyl phosphonate	Diisopropylmethyl phosphonate	DIMP
Dimethylmethyl phosphonate	Dimethylmethyl phosphonate	DMMP
ORGANOSULPHUR COMPOUNDS/GCFPD		OSC
1,4-Oxathiane	1,4-Oxathiane	OXAT
Benzothiazole	Benzothiazole	BTZ
Chlorophenylmethyl sulfide	p-Chlorophenylmethyl sulfide	CPMS
Chlorophenylmethyl sulfone	p-Chlorophenylmethyl sulfone	CPMSO ₂
Chlorophenylmethyl sulfoxide	p-Chlorophenylmethyl sulfoxide	CPMSO
Dimethyldisulfide	Dimethyldisulfide	DMDS
Dithiane	Dithiane	DITH
METALS/ICP	ICAP	ICP
Cadmium	Cadmium	CD
Chromium	Chromium .	CR
Copper	Copper	CU
Lead	Lead	PB
Zinc	Zinc	ZN
SEPARATE ANALYSES		
Arsenic/AA	Arsenic	AS
Mercury/AA	Mercury	HG

Analytes/Methods	Synonymous Namesand_Abbreviations	Standard Abbreviations
ARMY AGENT DEGRADATION PRODUCTS:		ADP
AGENT PRODUCTS/HPLC	TDGCL	
Chloroacetic Acid	Chloroacetic acid	CLC2A
Thiodiglycol	Thiodiglycol (TDG)	TDGCL
AGENT PRODUCTS/IONCHROM	IMPA	GBDP
Fluoroacetic acid	Fluoroacetic acid	FC2A
Isopropylmethylphosphonic acid	Isopropylmethylphosphonate	IMPA
Methylphosphonic acid	Methylphosphonate	MPA

Methods	Abbreviations
Atomic Absorption Spectroscopy	AA
Gas Chromatography/Conductivity Detector	GCCON
Cas Chromatography/Electron Capture	GCEC
Gas Chromatography/Flame Ionization Detector	GCFID
Gas Chromatography/Flame Photometric	GCFPD
Gas Chromatography/Mass Spectrometry	GCMS
Gas Chromatography/Nitrogen Phosphorous Detector	GCNPD
Gas Chromatography/Photoionizaton Detector	GCPID
High Performance Liquid Chromatography	HPLC
Inductively Coupled Argon Plasma	JCP, ICAP
Ion Chromatography	IONCHROM

APPENDIX 30-1-B PHASE I CHEMICAL DATA PROJECT NUMBER 85937 0420 PROJECT NAME RMA TASK14
FIELD GROUP 30-1 PROJECT MANAGER M. WITT
30-1SG LAB COORDINATOR PAUL GEISZLER

03/27/86 03/28/86 03/28/86 08:21 09:40 09:	03.28/86 03. 09:40	03/27/ 00: 4. 80 80 11868 21936 7	86 03/28/86 SO 10:40 SO SO OO O.0 RK RK S S S S 27 186309 38 2192886 .4 8.9	03/28/86 10:40 \$0 4.00 4.00 BORE RK S 186309 2192886 7.00	303/28/86 10:14 SO 0.0 BORE RK S 186867 2192886	03/28/86 10:14 . SO 4.00 BORE RK S 186867 2192886	14:10 14:10 SO 0.0 BORE RK S 186073 2192372 2		04/02/86 10:37 SO 0.0 BORE RK S 186362 2192020
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20.5 13.6 6.900 20.5 13.6 18.7 14.3 11.5 14.2 31.9 19.5 33.7 59.3 47.2 59.9 <4.70	7.4			006.0>	000 07		•		31
20.5 13.6 18.7 14.3 11.5 14.2 31.9 19.5 33.7 59.3 47.2 59.9 <4.70	<0.900				70.70	<0.900	<0.510	<0.510	<0.510
14.3 11.5 14.2 31.9 19.5 33.7 59.3 47.2 59.9 <4.70	9.37	15.7 12.7	6.91	14.0	18.3	68.6	13.7	<7.40	11.2
31.9 19.5 33.7 59.3 47.2 59.9 <4.70	8.17	15.6 12.5	12.8	60.6	14.0	29.1	19.0	30.7	14.9
59.3 47.2 59.9 <4.70	<17.0	23.6 23.5	30.5	<17.0	28.7	31.5	26.3	<16.0	<16.0
<4.70	31.7	53.2 46.7	53.2	34.1	54.4	7.97	58.8	60.3	42.5
(0.050 (0.050 (0.050 (0.900 (0.900 (0.300 (0.300 (0.400 (0.400	<4.70	7.39 6.75	5 <4.70	<4.70	<4.70	<4.70	<5.20	<5.20	<5.20
<0.900	<0.050	<0.050 <0.050	(0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
<pre><0.300 <0.300 <0.300 <0.400 <0.400 <0.400</pre>	<0.900	(0.900 (0.900	006.0>	<0.900	<0.900	<0.900	<0.500	<0.500	<0.500
<0.400 <0.400 <0.400	<0.300	(0.300 (0.300	(0.300	<0.300	<0.300	<0.300	<0.600	<0.600	(0.600
	<0.400 <	<0.400 <0.400	(0.400	<0.400	<0.400	<0.400	<2.00	<2.00	<2.00
98369 <0.700 <0.700 <0.700 <0.700	<0.700	<0.700 <0.700	(0.700	<0.700	<0.700	<0.700	64.00	<4.00	64.00
98361 <1.00 <1.00 <1.00 <1.00	(1.00	<1.00 <1.00	(1.00	<1.00	<1.00	<1.00	<6.00	6.00	6.00

PROJECT NUMBER 85937 0420 PROJECT NAME RMA TASK14
FIELD GROUP 30-1
30-1SG LAB COORDINATOR PAUL GEISZLER

PARAMETERS S Units	STORET #	5325A 30-1	5325B 30-1	5326A 30-1 12	53268 30-1 13	5326C 30-1	SA 5327A 30-1 23	SAMPLE 10/# A 53278 1 30-1	5328A 30-1 34	5328B 30-1 35	5329A 30-1 45	53298 30-1 46	5330A 30-1 56	53308 30-1 57	5331A 30-1 67
DATE TIME		03/27/86 08:21	03/27/86 08:21	03/28/86 09:40	03/28/86 09:40	03/28/86 09:40	03/27/86 00:00	03/27/86 00:00	03/28/86 10:40	03/28/86 10:40	03/28/86 10:14	03/28/86 10:14	04/11/86 14:10	04/11/86 14:10	04/02/86
DDE_PP'	98363	<0,300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.500	<0.500	<0.500
1,4 OXATHIANE	98644	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.500	<0.500	<0.500
170 8/50 V40-3/3H	98645	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<3.00	<3.00	<3.00
VAPONA UC/C -DRY	98646	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROCYCLOPENT-	98647	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
8	98648	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<2.00	<2.00	<2.00
1 SODRIN 11676-08Y	98649	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.600	<0.600	<0.600
1.4 DITHIANE	98650	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<2.00	<2.00	<2.00
DICYCLOPENTADIENE HG/G-DRY	98651	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	00.9>	<6.00	(6.00
DBCP(NEMAGON)	98652	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.600	<0.600	<0.600
P-CLPHENYLMETHYL- SHIFIDE HG/G-DRY	98653	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
-	98654	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<1.00	<1.00	<1.00
ATRAZINE IIC /C-DBY	98655	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.500	<0.500	<0.500
SUPONA UC/C-08Y	98656	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.900	<0.900	<0.900
DMMP UG/6-08Y	98657	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<3.00	<3.00	<3.00
PARATHION 116/6-DRY	98658	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<2.00	<2.00	<2.00
P-CLPHENYLMETHYL-	98703	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.400	<0.400
à	98687					<0.300									
N.	98688					<0.300									
UG/G-DRI METHYLENE CHLORIDE UG/G-DRY	0 68986 0					<0.300									

PROJECT NUMBER 85937 0420 PROJECT NAME RMA TASKI4
FIELD GROUP 30-1 PROJECT MANAGER M. WITT
30-1SG LAB COORDINATOR PAUL GEISZLER

3308 5331A 30-1 30-1 57 67	86 04/02/86 10 10:37			•																	09.0> 09	009.0> 009)	
u)	6 04/11/86 0 14:10																				0 <0.60	009.0> 0			
5330A 30-1 56	04/11/86 14:10																				09.0>	<0.600			
5329B 30-1 46	03/28/86 10:14																				<0.30	<0.300			
5329A 30-1 45	03/28/86 10:14								٠												<0.30	<0.300			
5328B 30~1 35	03/28/86 10:40																				<0.30	<0.300			
5328A 30-1 34	03/28/86 10:40																				<0.30	<0.300			
SAMPLE 10/# 'A 53278 'I 30-1	03/27/86 00:00																				<0.30	<0.300			
SAP 5327A 30-1 23	03/27/86 00:00																				<0.30	<0.300			0.455
5326C 30-1	03/28/86 09:40	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	005.00	200	<0.300	<0.300		<0.500	<0.300	008 07		<0.300	<0.300	<0.300	<0.300	<0.30	<0.300			
5326B 30-1 13	03/28/86 09:40																				<0.30	<0.300			
5326A 30-1 12	03/28/86 09:40																				<0.30	<0.300			
53258 30-1 2	03/27/86 08:21																				<0.30	<0.300			
5325A 30-1	03/27/86 08:21																				<0.30	<0.300	0.649		
STORET # METHOD	-	06986	16986	98692	98693	98694	56986	08696	0 0 0 0 0 0	76986	66986	0	98700	CARBON TETRACHLORIDE 98680	0 0 0 0 0	0	28986	68986	98684	98986	98652	09 98652	H9 90049	36	1 2006
S																									

PROJECT NAME RMA TASK14
PROJECT MANAGER M. WITT
LAB COORDINATOR PAUL GEISZLER

PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1SG

PAGE#

04/02/86 5331A 30-1 67 1.12 0.784 53308 30-1 57 04/11/86 14:10 04/11/86 0.719 0.479 0.479 0.719 0.719 0.479 0.479 5330A 30-1 56 0.599 0.838 0.628 5329B 30-1 46 03/28/86 10:14 03/28/86 0.392 0.430 5329A 30-1 45 03/28/86 10:40 5328B 30-1 35 03/28/86 10:40 5328A 30-1 34 SAMPLE 10/# 5327A 5327B 30-1 30-1 23 24 03/27/86 03/27/86 00:00 00:00 0.417 0.641 0.878 3.02 2.33 03/28/86 03/28/86 03/28/86 09:40 09:40 09:40 5326C 30-1 53268 30-1 13 5326A 30-1 12 03/27/86 08:21 53258 30-1 03/27/86 08:21 0.813 1.06 0.569 5.67 0.859 5325A 30-1 0.487 0.377 90022 36 90063 36 99006 90067 50 90111 50 90072 50 90073 50 90 105 STORET # 90088 36 90108 36 90200 90070 90078 36 36 36 90081 36 90083 90085 36 90086 36 90182 UNITS 0/00 9/90 9/90 9/90 0/90 9/90 9/90 9/90 9/90 9/90 0/90 0/90 9/90 9/99 9/90 0/90 9/90 0/00 06/6 9/90 PARAMETERS UNK 614 UNK 609 UNK 611 UNK 617 UNK619 UNK 626 UNK 628 UNK 634 **UNK636** UNK 642 UNK 537 **UNK 652 UNK 637 UNK 625** UNK 631 **UNK 633 UNK 027 UNK 566 UNK 606 UNK618** DATE TIME

				PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1SG	1BER 85937 30-1 30-1SG	0420	PROJECT N PROJECT M LAB COORD	AME RMA ANAGER M. INATOR PAU	PROJECT NAME RMA TASK14 PROJECT MANAGER M. MITT LAB COORDINATOR PAUL GEISZLER					
							SAMP	SAMPLE 1D/#						
		5325A	53258			5326 C	S	5327B		5328B	5329A	53298	5330A	5330B
RAMETERS	STORET #	30-1	30-1	30-1	30-1	30-1		30-1	30-1	30-1	30-1	30-1	30-1	30-1
27.1111	COLFT	-	r			-		•		1	4	71	ì	:

						30-186	9	LAB COOR	LAB COORDINATOR PAUL GEISZLER	UL GEISZLE	œ					
PARAMETERS U	INITS	STORET #	5325A 30~1	53258 30-1 2	5326A 30-1 12	53268 30-1 13	5326C 30-1 14	SAM 5327A 30-1 23	SAMPLE 10/# 27A 5327B 30-1 23 24	5328A 30-1 34	5328B 30-1 35	5329A 30-1 45	53298 30-1 46	5330A 30-1 56	5330B 30-1 57	5331A 30-1 67
DATE TIME			03/27/86 08:21	03/27/86 08:21	03/28/86 09:40	03/28/86 09:40	03/28/86 09:40	03/27/86 03/27/86 00:00 00:00	03/27/86 00:00	03/28/86 10:40	03/28/86 10:40	03/28/86 10:14	03/28/86 10:14	04/11/86	03/28/86 04/11/86 04/11/86 1 10:14 14:10 14:10	04/02/86 10:37
UNK 620	9/ 91	90074														
UNK648		90648														
UNK 550		90550														
UNK559		96006 36														
UNK 562		90033								٠						
UNK582		90045														
UNK 599		90127														
UNK 623		90077 36														
UNK650		90134														
UNK535 L		90087 50														
UNK 094		90007 50														

PROJECT NAME RMA TASK14 PROJECT MANAGER M. MITT LAB COORDINATOR PAUL GEISZLER

PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1SG

PAGE# 6

PARAMETERS UNITS	STORET # METHOD	53318 30-1 68	5332A 30-1 78	5332B 30-1 79	5333A 30-1 89	5333B 30-1 90	SA 5333C 30-1 91	SAMPLE 1D/# C 5334A 1 30-1	5334B 30-1 101	5334C 30-1 102	5335A 30-1	5335B 30-1 112	5335C 30-1 113	5336A 30-1 122	533 68 30-1 123
DATE TIME		04/02/86 10:37	04/02/86 10:16	04/02/86 10:16	04/02/86 10:37	04/02/86 10:37	04/02/86 10:37	03/27/8 6 09:01	03/27/86 09:01	03/27/86 09:01	03/26/86 14:39	03/26/86	03/26/86 14:39	04/02/86 13:04	04/02/86
SAMPLE TYPE	71999	SO	80	80	SO	20	SO	80	SO	80	80	So	20	80	SO
SAMPLE DEPTH	99758A	4.00	0.0	4.00	0.0	4.00	9.00	0.0	4.00	9.00	0.0	4.00	9.00	0.0	4.00
SITE TYPE 1	99759	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE
INSTALLATION CODE	99720	*	¥	*	X.	¥	ž	æ X	쭖	RK	æ	RK K	¥	퓵	æ
SAMPLING TECHNIQUE	72005	S	S	s	S	S	S	S	S	S	s	S	v	v	S
COORDINATE, N/S	98392	186362	186301	186301	186372	186372	186372	696981	186969	186969	187192	187192	187192	186975	186975
COORDINATE, E/N	98393	2192020	2192528	2192528	2193127	2193127	2193127	2192646	2192646	2192646	2193225	2193225	2193225	2192342	2192342
MOISTURE KUFT UT	70320	7.4	14.7	9.1	8.5	9.5	9.01	12.0	5.2	19.3	1.5	21.0	20.3	10.8	6.3
CADMIUM 116/6- DRY	1028	<0.510	<0.510	<0.510	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.510	<0.510
CHROMIUM UG/G-DRY	99584	17.2	19.4	15.7	18.	20.8	17.5	11.9	<7.20	<7.20	15.4	<7.20	<7.20	16.3	9.92
COPPER UG/G- DRY	1043	19.5	21.3	18.6	11.6	13.9	11.4	10.7	5.77	35.6	13.1	36.1	36.4	18.0	13.3
LEAD UG/G-DRY	1052	<16.0	<16.0	<16.0	32.4	33.7	28.4	<17.0	<17.0	30.1	20.3	32.2	30.6	20.8	<16.0
ZINC UG/G-DRY	1093	55.4	66.4	49.9	49.7	6.09	46.8	40.4	25.6	92.6	49.8	82.8	84.4	59.6	36.9
ARSENIC UG/G- DRY	1003	<5.20	<5.20	<5.20	<4.70	6.35	5.53	<4.70	<4.70	<4.70	5.90	<4.70	<4.70	<5.20	<5.20
MERCURY UG/G-DRY	71921	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
ALDRIN UG/G- DRY	98356	<0.500	<0.500	<0.500	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.500	<0.500
DIELDRIN UG/G-DRY	98365	<0.600	<0.600	<0.600	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.600	<0.600
00T,PP' UG/G-DRY	98364	<2.00	<2.00	<2.00	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<2.00	<2.00
ENDRIN UG/G-DRY	69836	<4.00	<4.00	<4.00	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<4.00	<4.00
CHLORDANE UG/G- DRY	0 9836	(6.00	6.00	00.9>	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	6.00	<6.00

PROJECT NUMBER 85937 0420 PROJECT NAME RMA TASK14
FIELD GROUP 30-1 PROJECT MANAGER M. WITT
30-1SG LAB COORDINATOR PAUL GEISZLER

PARAMETERS UNITS	STORET #	5331B 30-1 68	5332A 30-1 78	5332B 30-1 79	5333A 30-1 89	53338 30-1 90	SAI 5333C 30-1 91	SAMPLE 10/# C 5334A 1 30-1	5334B 30-1 101	5334C 30-1 102	5335A 30-1 111	5335B 30-1 112	5335C 30-1 113	5336A 30-1 122	5336B 30-1 123
DATE TIME		04/02/86	04/02/86 10:16	04/02/86 10:16	04/02/86 10:37	04/02/86 10:37	04/02/86 10:37	03/27/86 09:01	03/27/86 09:01	03/27/86 09:01	03/26/86 14:39	03/26/86 14:39	03/26/86 14:39	04/02/86 13:04	04/02/86 13:04
DDE, PP'	98363	<0.500	<0.500	<0.500	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.500	<0.500
1,4 OXATHIANE	98644	<0.500	<0.500	<0.500	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.500	<0.500
0.1MP 9.700	98645	<3.00	<3.00	<3.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<3.00	<3.00
VAPONA 16.76 - DRY	98646	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROCYCLOPENT -	98647	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Š	98648	<2.00	<2.00	<2.00	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<2.00	<2.00
I SODRIN	98649	<0.600	<0.600	<0.600	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.600	<0.600
1,4 DITHIANE	98650	<2.00	<2.00	<2.00	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<2.00	<2.00
DICYCLOPENTADIENE	98651	6. 00	00°9>	<6.00	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	00.9>	(6.00
DBCP (NEMAGON)	98652	<0.600	<0.600	<0.600	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.600	<0.600
P-CLPHENYLHETHYL-	85986	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
P-CLPHENYLMETHYL-	98654	<1.00	<1.00	<1.00	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<1.00	<1.00
ATRAZINE	98655	<0.500	<0.500	<0.500	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.500	<0.500
SUPONA 16.75-DRY	95986	<0.900	<0.900	<0.900	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.900	<0.900
DMMP CALL	98657	<3.00	<3.00	<3.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<3.00	<3.00
PARATHION	88986	<2.00	<2.00	<2.00	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<2.00	<2.00
P-CLPHENYLMETHYL-	98703	<0.400	<0.400	<0.400	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.400
Ċ	28986									<0.300			<0.300		
X	88986									<0.300			<0.300		
METHYLENE CHLORIDE UG/G-DRY	08689									<0.300			<0.300		

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PAGE#

53368 30-1 123 04/02/86 09.0> <0.600 1.07 5336A 30-1 122 04/02/86 <0.600 03/26/86 <0.30 <0.300 <0.300 <0.300 <0.500 <0.300 <0.300 <0.500 <0.300 <0.300 <0.300 <0.300 03/26/86 14:39 53358 30-1 112 <0.30 <0.300 03/26/86 14:39 5335A 30-1 <0.30 <0.300 0.377 5334C 30-1 102 <0.300 <0.300 <0.300 <0.300 <0.300 <0.500 <0.300 <0.300 <0.500 <0.300 <0.300 <0.300 03/27/86 <0.30 <0.300 PROJECT NAME RMA TASK14
PROJECT MANAGER M. WITT
LAB COORDINATOR PAUL GEISZLER 03/27/86 5334B 30-1 101 <0.30 <0.300 SAMPLE 10/# 5333C 5334A 30-1 30-1 91 100 03/27/86 09:01 <0.30 <0.300 04/02/86 <0.30 <0.300 04/02/86 53338 30-1 90 <0.30 <0.300 PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1SG 04/02/86 5333A 30-1 89 <0.30 <0.300 04/02/86 5332B 30-1 79 09.0> <0.600 5332A 30-1 78 04/02/86 <0.60 <0.600 04/02/86 53318 30-1 <0.60 <0.600 STORET # 66986 0 98700 98652 09 98652 26986 86986 98695 96986 16986 98680 98683 H9 90049 36 90071 98694 0 98682 98986 16986 18986 98684 UG/G-DRY
O-AND/OR P-XYLENE
UG/G-DRY
CARBON TETRACHLORIDE
UG/G-DRY
CHLOROBENZENE 1,1,1-TRICHLORO-ETHANE UG/G-DRY ETHANE UG/G-DRY TRICHLOROETHENE UG/G-DRY UG/G-DRY 1, 1-DICHLOROETHANE UG/G-DRY TETRACHLOROETHENE UG/G-DRY UG/G-DRY UG/G-DRY UG/G-DRY UG/G-DRY UG/C-DRY 1,2-DICHLOROETHANE UG/G-DRY BICYCLOHEPTADIENE UG/G-DRY UG/G-DRY UG/G-DRY .1.2-TRICHLORO-UNITS 0/90 9/90 DBCP (NEMAGON) PARAMETERS CHLOROFORM M-XYLENE BENZENE ETHANE **UNK615** DATE DMDS M 18K DBCP

PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER

PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-156

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PARAMETERS Units	STORET #	53318 30-1 68	5332A 30-1 78	5332B 30-1 79	5333A 30-1 89	53338 30-1 90	SAP 5333C 30-1 91	SAMPLE 1D/# 1C 5334A -1 30-1	5334B 30-1 101	5334C 30~1 102	5335A 30-1 111	5335B 30-1 112	5335C 30-1 113	5336A 30-1 122	53368 30-1 123
DATE TIME		04/02/86 10:37	04/02/86 10:16	04/02/86 10:16	04/02/86 10:37	04/02/86 10:37	04/02/86 10:37	03/27/86 09:01	03/27/86 09:01	03/27/86 09:01	03/26/86 14:39	03/26/86 14:39	03/26/86 14:39	04/02/86 13:04	04/02/86 13:04
UNK625	90006														
UNK 626	90079														
UNK 628 UC/6	18006														
UNK631	90083														
UNK633	90085														
UNK 634	98006	0.540	0.938	0,660	0.389			0.405						0.336	0.640
06/6 UNK636	36 9008														
UG/G UNK642	36 90108				0.346			0.353			0.536				
	36 90182														
0/90 0/8266	36														
06/6	36														
9/90	36														
0/0/0 0/0/0 0/0/0	90063 36														
UNK 614	90070						2.04				5.85	7.24	2.50		
UNK 609	99006														
UNK611	79006														
UG/G UNK 652	50 90111														
06/6 UNK617	50 90072														
9/90	5000														
9/90	5007														
UNK619	90105														
UNK 637	68006														
9/90	20														

PAGE# 10

	A 5336B 1 30-1 .2 123	16 04/02/86 14 13:04																				
	5336A 30-1 122	04/02/86 13:04																				
	5335C 30-1 113	03/26/86 14:39				0.482																
	53358 30-1 112	03/26/86 14:39									0.533			,	0.549							
	5335A 30-1 111	03/26/86 14:39									0.414		0.355				0.468					
EB	5334C 30-1 102	03/27/86 03/27/86 09:01 09:01																				
PROJECT NAME RMA TASK14 PROJECT MANAGER M. MITT LAB COORDINATOR PAUL GEISZLER	5334B 30-1 101	03/27/86 09:01																				
PROJECT NAME RMA TASI PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GE	SAMPLE 10/# 3C 5334A -1 30-1	04/02/86 03/27/86 10:37 09:01																				
PROJECT PROJECT LAB COC	S333C 30-1 91	04/02/86 10:37																				
17 0420 SG	53338 30-1 90	04/02/86 10:37																				
NUMBER 85937 0420 ROUP 30-1 30-1SG	5333A 30-1 89	04/02/86 10:37	0.391																			
PROJECT N FIELD GRO	53328 30-1 79	04/02/86 10:16																				
	5332A 30-1 78	04/02/86 (
	5331B 30-1 68	04/02/86																				
	STORET #		90074	36 90648	36	90550	36	66006 9e	90033	36	90045	36	90127	36	90077	95	90134	36	8006	20	20006	20
	ERS Units		4	9 /90	9/9N	:	9/90	110/6		9/90	:	9/9n		9/90	4	٥/١٥		9/90		9/90		9/90
	PARAMETERS U	DATE TIME	UNK 620	UNK 648		UNK 550		UNKSSY	UNK 562		UNK 582		UNK 599		UNK 623		UNK 650	1	UNK 635		DNK094	

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PROJECT NUMBER 85937 0420 PROJECT NAME RMA TASK14 FIELD GROUP 30-1 PROJECT MANAGER M. WITT 30-1SG LAB COORDINATOR PAUL GEISZLER

		5337A	53378	5338A	53388	53394	SA 53308	SAMPLE 1D/#	23408	3.76	Š				
PARAMETERS Units	STORET #	30-1	30-1	30-1	30-1	30-1 155	30-1 30-1 156	30-1	30-1 30-1 167	30-1 177	30-1 178	3341C 30-1 179	5342A 30-1 188	5342B 30-1 189	5343A 30-1 199
DATE		04/11/86 13:47	04/11/86	03/26/86 13:22	03/26/86 13:22	03/26/86 13:22	03/26/86 13:22	03/26/86 12:45	03/26/86 12:45	03/26/86 08:50	03/26/86 08:50	03/26/86 08:50	04/11/86	04/11/86	03/26/86
SAMPLE TYPE	71999	00	SO	SO	SO	S	8	80	80	80	80	So	SO	SO	00
SAMPLE DEPTH FT	99758A	0.0	4.00	0.0	4.00	0.0	4.00	0.0	4.00	0.0	4.00	9.00	0.0	4.00	0.0
SITE TYPE 1	99759	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE
INSTALLATION CODE SAMPLE	99720	₩.	ž	ž	풒	꿆	æ	Æ	ž	Æ	Æ	æ	¥	Æ	¥
SAMPLING TECHNIQUE	72005	S	W	S	v	δ	v	s	S	ν	S	S	S	ω	S
COORDINATE, N/S STP	98392	186948	186948	187339	187339	187726	187726	188199	188199	188669	188669	188199	187683	187683	188047
COORDINATE, E/W STP	98393	2191848	2191848	2193593	2193593	2193605	2193605	2193628	2193628	2193638	2193638	2193628	2192981	2192981	2193106
MOISTURE XHET HT	70320	8.9	9.9	9.0	11.0	9.8	9.1	11.8	7.0	16.9	21.1	20.7	20.2	9.3	10.9
	1028	<0.510	<0.510	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.510	<0.510	<0.510	<0.510	<0.510	<0.900
Œ	99584	<7.40	13.7	15.3	<7.20	18.1	16.4	17.71	16.2	21.1	11.9	12.6	19.0	9.40	15.9
œ	1043	9.40	13.2	14.0	14.6	15.3	14.9	13.6	14.4	23.6	50.8	57.5	21.0	12.3	20.3
	1052	<16.0	<16.0	25.9	29.1	30.2	27.6	32.2	28.3	<16.0	<16.0	26.3	<16.0	<16.0	26.3
	1093	<28.0	48.3	52.3	88.4	58.4	56.0	56.1	55.6	68.9	Ξ	88.8	1.99	41.5	50.2
	1003	<5.20	<5.20	5.82	<4.70	<4.70	<4.70	<4.70	6.34	<5.20	<5.20	<5.20	<5.20	<5.20	5.87
_	71921 0	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	98356 0	<0.500	<0.500	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.500	<0.500	<0.500	<0.500	<0.500	<0.900
~	0 0 0	<0.600	<0.600	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.600	<0.600	<0.600	<0.600	<0.600	<0.300
DOT,PP' UG/6-DRY	98364 0	<2.00	<2.00	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<2.00	<2.00	<2.00	<2.00	<2.00	<0.400
	0 69836	<4 .00	<4.00	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	*** ** * * * * * * * 	<4.00	<4.00	<4.00	<4.00	<0.700
CHLORDANE UG/G- DRY	98361	(6.00	00.9>	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	(6.00	6. 00	(6.00	(6.00	6.00	<1.00

199

03/26/86 <1.00 5343A 30-1 <0.300 <0.600 <0.300 <2.00 <0.300 <0.500 <0.300 <0.300 <0.300 <0.300 **c0.500** <0.700 04/11/86 5342B 30-1 189 <0.500 <3.00 <2.00 <2.00 <0.500 <0.300 <1.00 <0.600 <6.00 <0.300 <1.00 <0.500 <0.900 <3.00 8 <0.600 5342A 30-1 188 (6.00 <3.00 <0.300 <1.00 <2.00 <0.600 <2.00 <0.600 <0.300 00.1> <0.900 <3.00 <0.500 04/11/86 <0.500 <0.500 ς. 03/26/86 08:50 <0.500 <0.600 179 3.00 <0.300 \$ 00.1> <2.00 <2.00 <6.00 <0.600 <1.00 <3.00 8 <0.500 (0.300 <0.500 <0.900 8 03/26/86 08:50 <0.500 <0.500 <2.00 3.00 <0.300 <1.00 <2.00 <0.600 **6.00** <0.600 <0.300 <1.00 <0.500 <3.00 <2.00 006.00 03/26/86 08:50 <0.500 <0.500 <3.00 <0.300 00.15 <2.00 <0.600 <2.00 <0.600 177 <6.00 <0.500 <3.00 <2.00 00:300 <0.900 PROJECT NAME RMA TASK14
PROJECT MANAGER M. WITT
LAB COORDINATOR PAUL GEISZLER <0.300 <0.300 <0.500 <0.300 00.1> <0.600 <0.300 co. 300 <0.300 <0.400 167 03/26/86 <0.300 <0.300 <0.500 SAMPLE 1D/# 53398 5340A 30-1 30-1 156 166 <0.300 <0.300 <0.500 <0.300 <1.00 <0.300 <0.300 <0.400 <0.700 <2.00 03/26/86 co.600 <0.300 <0.300 <0.300 03/26/86 13:22 <0.300 <0.300 <0.500 <0.300 <1.00 <0.600 <0.300 <0.300 <0.300 <0.300 <0.400 <0.700 <0.500 <2.00 <0.300 <0.700 5339A 30-1 155 <0.300 <0.300 03/26/86 <0.300 <0.500 <0.300 <0.300 <0.300 <0.300 <0.600 <0.300 <0.500 <2.00 PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1 30-1SG 03/26/86 5338B 30-1 145 <0.300 <0.300 <0.500 <0.300 <1.00 <0.600 <0.300 <2.00 <0.300 <0.300 <0.300 <0.300 **c0.400** <0.700 <0.500 03/26/86 13:22 <0.300 <0.300 <0.300 <0.300 <1.00 5338A 30-1 44 <0.500 <0.300 <0.600 <0.300 <0.300 <2.00 <0.300 <0.300 <0.400 <0.700 <0.500 5337B 30-1 (6.00 04/11/86 <0.500 <3.00 <2.00 <0.600 <2.00 009.0> (0.300 <1.00 (0.500 <3.00 <0.900 <0.500 <2.00 <6.00 5337A 30-1 133 04/11/86 <3.00 <0.300 <1.00 <0.600 <2.00 <0.600 <0.300 00.1> <0.900 <0,500 <3.00 <2.00 <0.500 98645 98646 STORET # 98649 98650 98653 98703 0 METHOD 98644 98647 98648 98652 98654 98655 98656 98658 98651 98657 UG/G -DRY HEXACHLOROCYCLOPENT-P-CLPHENYLMETHYL-SULFIDE UG/G-DRY P-CLPHENYLMETHYL-SULFOXIDE UG/G-DRY ATRAZINE UG/G-DRY UG/G- DRY UG/G-DRY UG/G-DRY UG/G-DRY UG/G-DRY P-CLPHENYLMETHYL-SULFONE UG/G-DRY UG/G-DRY UG/G-DRY UG/G-DRY UG/G-DRY UG/G-DRY UG/G-DRY UC/C-DRY O I C Y C L O P E N T A D I E N E UNITS SCP (NEMAGON) 1,4 OXATHIANE 1,4 DITHIANE PARAMETERS MALATHION PARATHION SODRIN . d d ' 300 VAPONA AD I ENE SUPONA DATE O I MP DHHP

<0.300

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<0.400

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co.300

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co. 400

98687 0 98688

TRANS-1,2-DICHLORO-ETHENE UG/G-DRY

ETHYLBENZENE

0 0 0

UG/G-DRY CHLORIDE UG/G-DRY

METHYLENE

	53428
	5342A
	5341C
	53418
	5341A
PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER	5340B
AME RMA ANAGER M. INATOR PAU	SAMPLE 10/# 1398 5340A 10-1 30-1
PROJECT N PROJECT M LAB COORD	SAMPLE 53398 30-1
	5339A 30-1
PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1SC	53388
ROJECT NUM TELD GROUP	5338A 30-1
a. u.	5337B 30-1
	5337A 30-1
	STORET #
	AMETERS

							SAM	SAMPLE 10/#							
PARAMETERS Units	STORET #	5337A 30-1 133	53378 30-1 134	5338A 30-1 144	5338B 30-1 145	5339A 30-1 155	53398 30-1 156	5340A 30-1 166	5340B 30-1 167	5341A 30-1 177	5341B 30-1 178	5341C 30-1 179	5342A 30-1 188	5342B 30-1 189	5343A 30-1 199
DATE TIME		04/11/86 13:47	04/11/86 13:47	03/26/86 13:22	03/26/86 13:22	03/26/86 13:22	03/26/86 13:22	03/26/86 12:45	03/26/86 12:45	03/26/86 08:50	03/26/86 08:50	03/26/86 08:50	04/11/86	04/11/86 08:50	03/26/86
TETRACHLOROETHENE UG/G-DRY TOLUENE UG/G-DRY 1, 1, 1-TRICHLORO- ETHANE UG/G-DRY 1, 1, 2-TRICHLORO- ETHANE UG/G-DRY TRICHLOROETHENE M-XYLENE UG/G-DRY DNDS UG/G-DRY DNDS UG/G-DRY ONDS UG/G-DRY DNDS UG/G-DRY CARBON TETRACHLORIDE UG/G-DRY CARBON TETRACHLORIDE UG/G-DRY CARBON TETRACHLORIDE UG/G-DRY UG/G-DRY CARBON TETRACHLORIDE UG/G-DRY CHLOROBENZENE															
CHLOROFORM UC/G-DRY I, I-DICHLOROETHANE UC/G-DRY U, Z-DICHLOROETHANE UG/G-DRY UG/G-DRY	98682 98683 98684 98684 0 98686					. ·									
DBCP (NEMAGON) UG/G-DRY	98652	09.0>	<0.60	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	09'0>	<0.60	09:0>	09:0>	09.0>	<0.30
	98652 H9 90049 36	<0.600	<0.600	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.600	<0.600	<0.600	<0.600	<0.600	<0.300
UNK615 UC/C	90071 36			0.604		0.567					2.53	1.26			

ENVIRONMENTAL SCIENCE & ENGINEERING 02/17/87 STATUS:

PROJECT NAME RMA TASK14
PROJECT MANAGER M. WITT
LAB COORDINATOR PAUL GEISZLER

PROJECT NUMBER 85937 0420 FIELD GROUP 30-1

30-186

PAGE# 14

5343A 30-1 199 03/26/86 0.811 04/11/86 08:50 5342B 30-1 189 0.882 04/11/86 08:50 5342A 30-1 188 0.877 03/26/86 08:50 534 IC 30-1 179 03/26/86 08:50 5341B 30-1 178 03/26/86 03/26/86 12:45 08:50 5341A 30-1 177 5340B 30-1 167 995.0 2.31 SAMPLE 10/# 5339B 5340A 30-1 30-1 156 166 03/26/86 03/26/86 13:22 12:45 0.464 2.36 0.370 3.70 5339A 30-1 155 03/26/86 03/26/86 13:22 13:22 0.459 0.561 4.62 0.664 5338B 30-1 145 2.37 03/26/86 5338A 30-1 144 0.476 0.648 3.87 04/11/86 53378 30-1 134 04/11/86 5337A 30-1 133 0 . . STORET # 90078
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	5343A 30-1 199 3/26/86 12:33			0.383	
	5342A 5342B 5343A 30-1 30-1 30-1 18B 189 199 04/11/86 04/11/86 03/26/86 08:50 08:53 12:33				
	5342A 30-1 188 04/11/86				
	5341C 30-1 179 03/26/86 08:50				
51	SAMPLE 10/# 5340B 5341A 5341B 5339B 5340A 5340B 5340B 5340B 5340B 5340B 5341B 30-1 30-1 30-1 178 178 178 178 178 178 178 178 178 17				
PAGE#	5341A 30-1 177 03/26/86				
IA TASK14 , WITT NUL GEISZLE	5340B 30-1 167 03/26/86	7			
02/17/87 STATUS: PROJECT NAME RMA TASK14 PROJECT NAMAGER M. WITT LAB COORDINATOR PAUL GEISZLER	SAMPLE 10/# 38 5340A -1 30-1 56 166	\$.			
	SAI 53398 30-1 156 03/26/86	13;22			
ENVIRONMENTAL SCIENCE & ENGINEERING PROJECT NUMBER 65937 0420 FIELD GROUP 30-1	5339A 30-1 155 03/26/86	13:22	0.444	0.914	
CONNENTAL SCIENCE & ENCÍNEE PROJECT NUMBER 65937 0420 FIELD GROUP 30-1	53388 30-1 145 03/26/86	13:22 13:22			
ONMENTAL SI PROJECT NU FIELD GROU	5338A 30-1 144 03/26/86	13:22	0,380	0,755	
ENVIE	53378 30-1 134 134	13:47			
	\$337A 30-1 133	13:47			
	STORET #	90074 36 90648	36 90550 36 90099 36	90043 36 90045 90127 90077 90077	90087 90007 90007 90007
	S UNI TS	9/90	9/9n 9/9n 9/9n	9/9n 9/9n 9/9n 9/9n	9/9n 0/9n
	P ARAMÉTERS U	DATE TIME UNK 620	UNK 550	UNK 562 UNK 582 UNK 599	UNK650 UNK635 UNK094

				ENVIR	ENVIRONMENTAL S	SCIENCE & ENGINEERING	NG I WEER ING	02/11/87	STATU		PAGE#	91				
					PROJECT NUMB FIELD GROUP	NUMBER 85937 0420 OUP 30-1 30-156	0420 G	PROJECT NAME PROJECT MANAGER LAB COORDINATOR	NAME RH HANAGER M. DINATOR PA	PROJECT NAME RMA TASK 14 PROJECT MANAGER M. MITT LAB COORDINATOR PAUL GE ISZLER						
			53438	5344A	\$344B 30-1	5345A 30~1	53458 30-1	SAK 5345C 30-1	SAMPLE 10/# C 5346A 1 30-1	53468 30~1	5347A 30-1 243	5347B 30-1 244	5348A 30-1 254	5348B 30-1 255	53480 30-1 256	5349A 30-1 265
ARAMETERS	UNITS	STORE I		210	211	122		223	98/11/40		04/02/86	04/02/86		03/26/86 (03/26/86 04	04/02/86
DATE			03/26/86	03/26/86 09:21	03/26/86 09:21	04/11/86	04/11/80	09:40	13:00	13:00	14:12	14:12	\$0:01 S0		S S	00
THE TYPE		71999	20	20	00	80	80	S	S	OS S	9 6	8 8	0.0	4.00	9.00	0.0
SAMPLE DEPTH	~	0 99758A	4.00	0.0	4.00	0.0	4.00	9.00	0.0	00.4	טיס	BORE	BORE	BORE	BORE	BORE
FT SITE TYPE 1	-	0 99759	BORE	BORE	BORE	BORE	BORE	BORE	BORE	מטאר מי	3 3	ä	£	¥	¥	¥
INSTALLATION CODE	GODE *	0 99720	¥	Æ	æ	Ж	¥	뚪	ž	€ '	4 6		v	v	v	S
SAMPLE SAMPLING TECHNIQUE	SAMPLE	72005	w	v	v	s	s	v	w	<i>y</i>	0 1	77701	187900	187900	187900	187945
COORD INATE N/S	X/S	0 98392	188047	188510	168510	187416	187416	187416	187463	187463	18/34/	219195	2192638	2192638	2192638	2191924
STP COORDINATE, E/H	STP E.E.W	0 0 0	2193106	2193204	2193204	2192604	2192604	2192604	2191921	1261612	6.31412	0.11	12.1	14.2	4.6	10.0
MOLSTURE	4	0 70320	1.1	10.0	7.8	16.8	9.7	14.3	12.6	c./	2 2	015 07	(0.510	<0.510	<0.510	<0.510
	KKET HT	1028	<0.900	(0.510	<0.510	015,0> (<0.510	<0.510	<0.510	(0.510	016.00	?			9,40	15.1
	UC/G- DRY	·	8.09		19.4	16.5	C7.40	<7.40	10.5	10.1	9.62				, 99 134	17.5
<u> </u>	UC/G-DRY	0	76.9		9.61	5 20.1	38.6	26.5	13.6	11.8	13.8			7 6	0 417	<16.0
œ	UG/G- DRY		(17.0		0.91)	0 <16.0	<16.0	<16.0	<16.0	<16.0	<16.0	•		21.0	7 1	58.7
	UG/G-ORY				53.6	6.02 .9	91.7	65.0	34.8	41.9	33.4	57.6				(5.20
n SINC	UC/G-DRY					0 (5.20	<5.20	<5.20	<5.20	(5.20	(5.20	<5.20	<5.20			
ARSENIC	11676- DRY	1003			2 .		`	0.082	<0.050	050.020	<0.050	<0.050	<0.050	<0.050	<0.050	(0.050
MERCURY	UG/G-DRY	71921			. 9	050.05		~		00.500	<0.500	(0.500	005.00	<0.500	<0.500	(0.500
ALDRIN	116.76- DRY	98356	<0.900		÷				009.0>	009'0> 0	009.00	009:0> (009.0>	009·0>	<0.600	<0.600
DIELORIK	110 / C-0RY	98365	<0° 300	~	•	V					42.00	0 <2.00	0 <2.00	(2.00	<2.00	(5.00
DDT, PP'	YE0-2/20	98364	<0.400		8						00.4>	0 <4.00	00.4.00	00.1>	(4 . 00	64.00
ENDRIN	10-5/50 10-5/50	69886	<0.700								00.9>	00.9> 0	00.6.00	00.9>	00.9>	6.00
CHLORDANE		98361 RY 0	ó0.15 (1.00	00°9> Ó	00.9> 00	00 <6.00	00.9>		-							
	1															

PAGE# 17 PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER ENVIRONMENTAL SCIENCE & ENGINEERING 02/17/87 STATUS: PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1SC

	PARAMETERS STORET # UNITS METHOD	53438 30-1 30	5344A 30-1 210	5344B 30-1 211	5345A 30-1 221	5345B 30-1 222	SA 5345C 30-1 223	SAMPLE 10/# C 5346A 1 30-1 3 232	5346B 30-1 233	5347A 30-1 243	53478 30-1 244	5348A 30-1 254	53488 30-1 255	5348C 30-1 256	5349A 30-1 265
(4.30) (4.50)<		03/26/86 12:33		03/26/86 09:21	04/11/86 09:40	04/11/86 09:40	04/11/86 09:40	04/11/86	04/11/86	04/02/86 14:12	04/02/86 14:12	03/26/86 10:04	03/26/86 10:04	03/26/86 10:04	04/02/86 15:03
96444 (0.300 (0.500 </th <th>9836</th> <td></td> <td></td> <td><0.500</td>	9836			<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
96454 (3.50) (3.10) </th <th>986</th> <td></td> <td></td> <td><0.500</td>	986			<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
(4.30) (6.30)<	9864			<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00
(4.1.00) (4.1.00)	9864			<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
98648 C.0.600 C.2.00 C.2.00<	,			<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
946.5 (0.300 (2.00 (0.6	9864			<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
946.50 (40.300 (45.00 (9864			<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600
98653 (0.300 (6.00				<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
98654 (0.300 (0.600 (0.				(6.00	<6.00	<6.00	<6.00	<6.00	< 6 .00	<6.00	< 6 .00	<6.00	<6.00	00·9>	<6.00
98655 (0.300 (0.	9865			<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600
98655 (0.700 (0.500 (0.	9865			<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
98655 (0.700 (0.500 (0.	3865			<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1,00	<1.00	<1.00	<1.00	<1.00	<1.00
98656 (0.500 (0.900 (0.	5986			<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
98657 <2.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00 <3.00	9865			<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900
98658	9865			<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00
98703	9865			<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
98687	9870			<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400
<0.400 NA	8986						<0.800							<0.800	
NA	8986	D & C					<0.400							<0.400	
	8986	၀ တ္တ္က (X A							X A	

ENVIRONMENTAL SCIENCE & ENGINEERING 02/17/87 STATUS:

PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER

PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1SG

P ARANETERS UNITS	STORET # METHOD	5343B 30-1 200	5344A 30-1 210	5344B 30-1 211	5345A 30-1 221	53458 30~1 222	SA 5345C 30-1 223	SAMPLE 1D/# ic 5346A i 30-1	5346B 30-1 233	5347A 30-1 243	53478 30-1 244	5348A 30-1 254	5348B 30-1 255	5348C 30-1 256	5349A 30-1 265
DATE TIME		03/26/86 12:33	03/26/86 09:21	03/26/86	04/11/86 09:40	04/11/86	04/11/86 09:40	04/11/86	04/11/86	04/02/86 14:12	04/02/86 14:12	03/26/86 10:04	03/26/86 10:04	03/26/86 10:04	04/02/86 15:03
TETRACHLOROETHENE	06986						<0.500							<0.500	
TOLUENE US.C-ORY	98691						<0.300							<0.300	
1,1,1-TRICHLORO- FTHAME UC/C-DRY	98692						<0.500							<0.500	
LILZ-TRICHLORO- FTHANS US/S-DRY	98693						<0.600							<0.600	
TRICHLOROETHENE	98694						<0.600							<0.600	
M-XYLENE	98695						<0.300							<0.300	
M18K 00/8-081	96986						<0.400							<0.400	
DMDS UG/G-DRI	0 6986 7						<4.00							<4.00	
UG/G-DRY BENZENE	66986						<1.00							<1.00	
UG/G-DRY O-AND/OR P-XYLENE	0 98700						<0.500							<0.500	
CARBON TETRACHLORIDE	08986						<0.400							<0.400	
CHLOROBENZENE	98681						<0.300							<0.300	
CHLOROFORM	98682						<0.700							<0.700	
UG/G-DRY	0 0 0						<0.500							<0.500	
1,2-DICHLOROETHANE	98684						<0.400							<0.400	
UC/G-DRI BICYCLOHEPTADIENE HG/G-DRY	98986						<0.800							(0.800	
DBCP(NEMAGON)	98652	<0.30	<0.60	09.0>	<0.60	<0.60	<0.60	09.0>	09.0>	<0.60	09.0>	<0.60	<0.60	<0.60	<0.60
DBCP 116/6-DBY	98652	<0.300	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600
UNK 588 UG/G	90049														
UNK615 UG/G	90071 36								0.432					1.05	

ENVIRONMENTAL SCIENCE & ENGINEERING 02/17/87 STATUS:

PACE# 19

FIELD GROUP 30-1 PROJECT MANAGER M. HITT

						30-156	SG	LAB COO	LAB COORDINATOR PAUL GEISZLER	AUL GEISZLE	œ					
PARAMETERS	RS UNITS	STORET #	53438 30-1 200	5344A 30-1 210	5344B 30-1 211	5345A 30-1 221	5345B 30-1 222	SA! 5345C 30-1 223	SAMPLE 1D/# 15C 5346A 1-1 30-1 223 232	5346B 30-1 233	5347A 30-1 243	53478 30-1 244	5348A 30-1 254	5348B 30-1 255	5348C 30-1 256	5349A 30-1 265
DATE TIME			03/26/86 12:33	03/26/86 09:21	03/26/86 09:21	04/11/86 09:40	04/11/86	04/11/86	04/11/86	04/11/86	04/02/86	04/02/86	03/26/86	03/26/86	03/26/86	04/02/86
UNK 625	9	90078														
UNK 626	9/90	36 90079														
UNK 628	9/90	9006														
UNK 631	9/90	36 90083														
UNK 633	9/90	90085	0.917													
UNK 634	9/90	98006					0.664	1.17				0.674				
UNK 636	2/22	90088														
UNK 642		80106														
UNK 027	9/90	36 90182														
UNK 566	9/90	36														
	9/90	36														
UNK53/	9/90	90022 36														
UNK 606	0/00	9E 36														
UNK 6 1 4	9/90	90070	6.14													
UNK 609		99006														
UNK611		9006														
UNK 652	9/90	90111														
IINK 1.7	9/9n	50														
	9/90	5007														
UNK618	9/911	90073														
UNK 619	9/9/1	90105														
UNK 637		68006									,					
	9/90	20														

STATUS:
02/17/87
ENGINEERING
SCIENCE &
ENVIRONMENTAL

												;				
					PROJECT N FIELD GRO	PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1SG	17 0420 SG	PROJECT NAME PROJECT MANAG LAB COORDINAT	8 5	RMA TASKI4 M. WITT PAUL GEISZL	13					
PARAMETERS	UNITS	STORET #	5343B 30-1 200	5344A 30-1 210	5344B 30-1 211	5345A 30-1 221	53458 30-1 222	SAP 5345C 30-1 223	SAMPLE 10/# 5C 5346A -1 30-1	53468 30-1 233	5347A 30-1 243	5347B 30-1 244	5348A 30-1 254	5348B 30-1 255	5348C 30-1	5349A 30-1
DATE TIME			03/26/86	03/26/86 09:21	03/26/86 09:21	04/11/86 09:40	03/26/86 04/11/86 04/11/86 09:21 09:40 09:40	04/11/86 04/11/86 04/11/86 04/02/86 04/02/86 03/26/86 09:40 13:00 13:00 14:12 14:12 10:04	04/11/86	04/11/86	04/02/86	04/02/86	03/26/86	03/26/86		04/02/86
UNK 620	:	90074												-	5	9
UNK 648	9/90	36 90648														
UNK 550	9/90	36 90550														
	9/90	36														
UNK 559	•	66006														
673711	9/90	36														
	9/90	90033														
UNK 582		90045		0.889												
UNKS99	9/9n	36														
	0/00	36														
UNK 623		72006														
_	9/90	36														
	9/90	46 1 U V														
UNK 535		90087														
	9/90	20									0.850					1.000
UNK 094		40006														
-	0/9n	20													0.157	

STATUS:
02/11/87
ENGINEERING
SCIENCE &
ENVIRONMENTAL

					PROJECT N FIELD GRO	PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1SG	7 0420 SG	PROJECT PROJECT LAB COOI	PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER	MA TASKI4 . WITT AUL GEISZLI	æ	
PARAMETERS UNITS		STORET # METHOD	53498 30-1 266	5350A 30-1 276	5350B 30-1 277	5350C 30-1 278	5351A 30-1 287	SAI 53518 30-1 288	SAMPLE 10/# B 5352A 1 30-1 8 298	5352B 30-1 299	5353A 30-1 309	53538 30-1 310
DATE TIME			04/02/86 15:03	03/28/86 08:44	03/28/86 08:44	03/28/86 08:44	03/27/86 00:00	03/27/86 00:00	04/02/86 14:40	04/02/86 !4:40	04/11/86	04/11/86 13:21
SAMPLE TYPE		71999	SO	80	SO	SO	20	80	00	SO	00	SO
SAMPLE DEPTH	0.	99758A	4.00	0.0	4.00	9.00	0.0	4.00	0.0	4.00	0.0	4.00
SITE TYPE 1		99759	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE
INSTALLATION CODE	300	99720	*	*	æ	8	æ	%	æ	R	R	æ
SAMPLING TECHNIQUE	II ONE	72005	S	S	S	S	S	ω	S	S	ω	S
COORDINATE, N/S		98392	187945	187781	187781	187781	188565	188565	188498	188498	188408	188408
COORDINATE, E/W	_	98393	2191924	2191048	2191048	2191048	2192707	2192707	2191966	2191966	2191327	2191327
MOISTURE	<u> </u>	70320	4.8	10.1	6.1	4.6	4.7	19.4	9.5	7.8	17.6	9.3
CADMIUM		1028	<0.510	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.510	<0.510
CHROMIUM	מפיים מאו	99584	<u>.</u>	21.5	14.3	10.6	14.5	- :	21.4	24.9	17.1	10.7
COPPER	06/6-DR1	1043	18.0	13.2	10.1	7.84	9.35	8.65	13.3	13.6	17.3	13.1
LEAD US.	מפיים מאו	1052	20.5	33.1	21.0	<17.0	24.0	20.1	41.4	36.3	<16.0	<16.0
ZINC	2 2 2	1093	49.6	9.09	43.5	31.5	43,8	45.2	63.8	63.9	44.2	42.9
ARSENIC	מפי פ-חשו	1003	<5.20	6.47	<4.70	<4.70	<4,70	<4.70	5.91	6.24	<5.20	<5.20
MERCURY	UG/G- DR1	71921	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	(0.050	<0.050	<0.050
ALDRIN UG/	06/6-081	98356	<0.500	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.900	<0.500	<0.500
DIELDRIN	UG/ G- UKT	98365	<0.600	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	(0,600	<0.600
00T_PP*	06/6-DRT	98364	<2.00	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<2.00	<2.00
ENDRIN 115.75	חפיי פ-חמין	69886	<4 .00	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	(0.700	4.00	<4.00
CHLORDANE UG/1	UG/G- DRY	98361	6.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	6.00	<6.00

5353B 30-1 04/11/86 <3.00 <0.300 <1.00 <2.00 <0.600 <2.00 **6.00** <0.600 <0.300 <1.00 <0.500 <0.900 <3.00 <2.00 <0.400 310 <0.500 <0.500 5353A 30-1 309 04/11/86 13:21 <0.500 <3.00 <0.300 ۰۵.۱× <2.00 <0.600 <2.00 00.9> 009.00 <0.300 <1.00 (0.500 <0.900 <0.400 <0.500 PROJECT NAME RMA TASKI4
PROJECT MANAGER M. WITT
LAB COORDINATOR PAUL GEISZLER 5352B 30-1 299 <0.300 <0.300 04/02/86 14:40 <0.300 <0.500 <0,300 00.1> <0.600 <0.300 <0.300 <0.300 <0.400 <0.700 <0.500 <2.00 <0.300 co.300 <0.700 SAMPLE 1D/# 18 5352A -1 30-1 38 298 14:40 <0.300 <0.300 <0.300 <0.300 <0.400 <0.700 <0.500 <2.00 <0.300 04/02/86 <0.500 <0.300 <1.00 <0.600 <0.300 <0.300 <0.300 03/27/86 00:00 53518 30-1 <0.500 <0.300 <0.300 <0.300 <0.300 <0.400 <0.700 <0.500 <2.00 <0.700 <0.300 288 <1.00 <0.600 <0.300 <0.300 (0.300 <0.300 <0.500 <2.00 <0.700 5351A 30-1 287 00:00 <1.00 <0.300 <0.300 <0.300 03/27/86 <0.300 <0.500 <0.300 <0.600 <0.300 <0.300 <0.400 <0.700 <0.300 <0.300 PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1 30-1SG 5350C 30-1 278 <0.300 <0.500 <0.300 00.1> <0.600 <0.300 <0.300 <0.300 <0.300 <0.300 <0.400 <0.700 <0.500 <2.00 <0.700 <0.300 08:44 03/28/86 <0.300 53508 30-1 277 <0.700 <0.500 <1.00 co.600 <0.300 <0.300 <0.300 <0.300 **co.300** c0.400 co. 700 <0.500 <2.00 <0.300 03/28/86 08:44 <0.300 <0.300 <0.300 <1.00 <0.600 <0.300 <0.700 <0.500 <2.00 <0.700 5350A 30-1 276 03/58/86 08:44 <0.500 <0.300 <0.300 <0.300 <0.300 <0.300 <0.300 **c0.4**00 5349B 30-1 266 <0.300 00,1> <0.500 <0.400 04/02/86 15:03 <0.500 <3.00 <0.300 <1.00 <2.00 <0.600 <2.00 **6.00** <0.600 <0.900 <3.00 <2.00 <0.500 STORET # 98645 98649 98650 98652 98653 98658 98703 0 68986 98646 98647 98648 0 0 0 0 98654 98655 98656 0 98687 98688 98651 98657 98644 HEXACHLOROCYCLOPENT-P-CLPHENYLMETHYL-SULFIDE UG/G-DRY P-CLPHENYLMETHYL-SULFOXIDE UG/G-DRY UG/C -DRY UG/G- DRY TRANS-1,2-DICHLORO-ETHENE UG/G-DRY DICYCLOPENTADIENE UG/G-DRY UG/G-DRY UG/G-DRY UG/G-DRY. UG/G-DRY UG/G-DRY UG/C-DRY UC/C-DRY UG/G-DRY UG/G-DRY UG/G-DRY UC/C-DRY UG/G-DRY UG/C-DRY UC/C-DRY METHYLENE CHLORIDE UG/G-DRY P-CLPHENYLMETHYL-UNITS DBCP (NEMAGON) 1,4 OXATHIANE ,4 DITHIANE ETHYLBENZENE PARAMETERS MALATHION PARATHION ATRAZINE SULFONE SODRIN . dd (300 AD I ENE SUPONA VAPONA DATE DINP DMMP

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	53538 30-1 310	04/11/86 13:21		09:0>	(0.600
Ćr.	5353A 30-1 309	04/11/86 0		09.0>	(0.600
PROJECT NAME RHA TASK 14 PROJECT MANAGER M. HITT LAB COORDINATOR PAUL GEISZLER	53528 30-1 299	04/02/86 (<0.30	<0.300
NAME BN MANAGER M. RDINATOR P!	SAMPLE 1D/# 5351B 5352A 30-1 30-1 288 298	04/02/86 14:40		<0.30	<0.300
PROJECT PROJECT LAB COOI	SAI 5351B 30-1 288	03/27/86 00:00		<0.30	<0.300
7 0420 SG	5351A 30-1 287	03/27/86 00:00		<0.30	<0.300
PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1SG	5350C 30-1 278	03/28/86 08:44		<0.30	<0.300
PROJECT N FIELD GRO	5350B 30-1 277	03/28/86 08:44		<0.30	<0.300
	5350A 30-1 276	03/28/86 08:44		<0.30	<0.300
	53498 30-1 266	04/02/86 15:03		09.0>	<0.600
	STORET #			98652 Q9	98652 H9 90049 36 90071
	PARAMETERS Units	DATE	TETRACHLOROETHENE UG/G-DRY 1, 1, 1-TRICHLORO- ETHANE UG/G-DRY 1, 1, 2-TRICHLORO- ETHANE UG/G-DRY TRICHLOROETHENE UG/G-DRY M-XYLENE UG/G-DRY BENZENE UG/G-DRY O-AND/OR P-XYLENE UG/G-DRY CARBON TETRACH/ORIDE UG/G-DRY CHLOROBENZENE UG/G-DRY CHLOROBENZENE UG/G-DRY CHLOROBENZENE UG/G-DRY CHLOROPENZENE UG/G-DRY 1, 2-DICHLOROETHANE UG/G-DRY UG/G-DRY	DBCP(NEMAGON) UG/G-DRY	DBCP UC/G-DRY UNK 588 UC/C UNK 615 UC/C

					PROJECT NI FIELD GROI	PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1SG	7 0420	PROJECT PROJECT LAB COOI	NAME RI MANAGER M.	PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER	6 5	
PARAMETERS	RS	STORET #	53498 30-1 266	5350A 30-1 276	5350B 30-1 277	5350C 30-1 278	5351A 30-1 287	SAI 53518 30-1 288	SAMPLE 1D/# 11B 5352A 1-1 30-1 18B 29B	5352 B 30-1 299	5353A 30-1 309	53538 30-1 310
DATE			04/02/86 15:03	03/28/86 08:44	03/28/86 08:44	03/28/86 08:44	03/27/86 00:00	03/27/86 00:00	04/02/86 14:40	04/02/86 14:40	04/11/86	04/11/86
UNK 625	9/ 9/1	90078										
UNK 626	0 /00	90079										
UNK 628	2 2	18006										
UNK 631		90083										
UNK 633	9/90	90085						0.445				
UNK 634	9/90	36 9008										1.10
	9/9N	36										
UNK 636	9/90	98006 36										
UNK 642	9/9/1	90106							0.350			
UNK 027		90182										
UNK 566	06/6	90200										
7	9/90	36										
UNK 537	9/90	36										
UNK 606	9/911	90063										
UNK 614		90070				0.382						
UNK 609	9/90	39 30006										
IINKELS	9/90	50										
	9/90	500										
UNK 652		90111										
TINK 617	9/90	90072										
	0/90	50										
UNK 6 18	<u>.</u>	90073										
UNK619	٥٥/ ه	90105										
	9/90	20										
UNK637	9/90	68006										

RMA TASK14	H. HIT	PAUL GEISZLER
PROJECT NAME	PROJECT MANAGER M. WITT	LAB COORDINATOR PAUL GEISZLER
ER 85937 0420	30-1	30-156
PROJECT NUMBE	FIELD GROUP 30-1	

	5353B 30-1 310	04/11/86															
6 5	5353A 30-1 309	03/27/86 04/02/86 04/02/86 04/11/86 04/11/86 00:00 14:40 14:40 13:21 13:21															
PROJECT NAME RMA TASK 14 PROJECT MANAGER M. MITT LAB COORDINATOR PAUL GEISZLER	53528 30-1 299	04/02/86 14:40		0.360													
NAME RANAGER M	SAMPLE 1D/# 1B 5352A -1 30-1 38 298	04/02/86 14:40															
PROJECT PROJECT LAB COOI	SAI 53518 30-1 288																
7 0420 SG	5351A 30-1 287	03/27/86 00:00															
PROJECT NUMBER 85937 0420 FIELD GROUP 30-1 30-1SG	5350C 30-1 278	03/28/86 03/28/86 08:44 08:44															
PROJECT NUMB FIELD GROUP	5350B 30-1 277	03/28/86 08:44															
	5350A 30-1 276	03/28/86 08:44															
	5349B 30-1 266	04/02/86 15:03															
	STORET #		90074	90648	90550	66006	36 90033	36	36	90127	36	36	90134	36	90087	20006	20
	ERS UNITS		0/ 0I	9/9/	9/91		9/90	9/90	9/90		9/90	9/90		3 /90	9/9/1	ò	9/90
	PARAMETERS	DATE	UNK 620	UNK 648	UNK 550	UNK 559	UNK 562	711	79C VIII)	UNK 599	11NK 623		UNK 650		UNK 635	UNK 094	

21.14	SI A IIS	
50/00/30	/8/80/00	
CAUTONOMICUTAL COLUMN S TUNIS LA FUNCTION D	3	

PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER

PROJECT NUMBER 85937 0420 FIELD GROUP T14QC 30.1MB

BLK BLK	BLK BLK BLK BLK BLK BLK BLK BLANK T140C T1	SAMPLE 1D/4 BLK BLK BLAMK BL	BLK BLK BLK BLK BLK BLK BLK BLANK T140C	BLK BLK BLK STORET # T14QC T14QC METHOD 3 5 6	02/28/86 03/05/86 03/06/86 03/	0S 0S 0S 66617	99758A 0.0 0.0 0.0	99759 QCMB QCMB QCMB	99720 RK RK RK	SAMPLING TECHNIQUE 72005 G G G	70320 2.4 2.4 2.4	1028 <0.900 <0.900 <0.900 <	99584 11.6 14.8 14.2	1043 9.70 9.50 10.00	1052 <17.0 24.1 <17.0	1093 43.3 48.9 47.2	1003 <4.70 <4.70 <4.70	71921 <0.050 <0.050 <0.050	98356 <0.900 <0.900 <0.900	98365 <0.300 <0.300 <0.300	98364 <0.400 <0.400 <0.400 <0	08369 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.700 <0.	98361 <1.00 <1.00 <1.00	98363 <0.300 <0.300 <0.300	1,4 OXATHIANE 98644 <0.300 <0.300 <0.300 <0
BLK BLK BLK BLK BLK BLANK	BLANK	SAMPLE 1D/4 BLK BLK BLANK BLANK BLANK T140C T140	SAMPLE 1D/4 BLX BLX BLANK BLANK BLANK BLANK T140C T140	7 SC K	03/06/86 03/13/86		0				4.	<0.900 <0.900	2	9	6	₩.		<0.050 <0.050							-
BLK BLK BLANK T140C T140C T140C T140C T140C T140C T0.0 00:00 SS SS SS SS SS O4/01/86 05/12/86 05/ 00:00 00:00 0.0 0.0 GCMB QCMB QCMB RK RK RK RK RK RK C	BLK	BLK BLAMK T140C T	BLK BLK (C) T14QC (C) T1AQC	AMPLE																		-			
BLANK T140C 52 05/12/86 05/ 0.0 0.0 0.01 (0.510 < (0.510 < (16.2 (16.0 42.1 <5.20 (0.500 < (0.500 < (4.00 < (6.00 < (6.00 < (6.00 < (6.00 < (6.00 <	BLANK T140C 52 53 53 05/12/86 05/12/86 00.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 14.5 10.4 14.5 10.4 14.5 10.4 14.5 10.4 14.5 0.01 0.01 0.01 0.01 0.01 0.00 0.00 0.	BLANK T140C T160C	BLANK T140C		04/01/86 00:00							<0.900								<0.300		<0.700	<1.00	<0.300	70 300
\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	BLANK T140C 53 05/12/86 0.0 0.0 0.01 (0.510 10.4 11.4 (16.0 36.8 (5.20 (0.500 (2.00 (4.00 (6.00	BLANK BLANK	BLANK BLANK	BLK T140C 13		S0	0.0	QCMB	æ	9	2.4	<0.900	10.7	9.00	<17.0	39.8	<4.70				<0.400	<0.700	<1.00		
		BLANK T140C 54 05/12/86 0.0 0.0 0.0 0.01 (0.510 8.50 10.3 (16.0 34.0 (5.20 (0.500 (2.00 (4.00 (6.00	BLANK 1140C 54 05/12/86 05/ 0.0 0.0 0.0 0.01 (0.510 < 8.50 (16.0 34.0 <16.0 (0.500 < (0.500 < (4.00 < (6.00 < (6.00 < (6.00 <			SO	0.0	QCMB	Æ	ပ	0.01		14.5	16.2		42.1			-						

3/87 STATUS
05/08/87
ENGINEERING 0
SCIENCE &
ENVIRONMENTAL

PROJECT NAME RMA TASK14
PROJECT MANAGER M. HITT
LAB COORDINATOR PAUL GEISZLER

PARAMETERS		STORET #	BLK T140C	BLK T140C	BLK T140C	BLK T140C	BLK T140C	SA BLK T140C	SAMPLE 1D/# BLK BLK 40C T140C	BLK T149C	BLK T140C	BLANK T140C	BLANK T140C	BLANK T140C	BL ANK T140C	BLK T149C
Š	UNITS	METHOD	m		9	7	89	01	=	12	<u></u>	25	53	54	26	63
DATE TIME			02/28/86	03/02/86	98/90/E0	98/90/E0	03/13/86	03/14/86	03/14/86	04/01/86 00:00	04/07/86 00:00	05/12/86	05/12/86	05/12/86	05/12/86	00:00 00:00
DIMP	UG/G-DRY	98645	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<3.00	<3.00	<3.00	<3.00	<3.00
VAPONA	ug/G -DRY	98646	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROCYCLOPENT AD IENE UG/G-DRY	CYCLOPENT- UG/G-DRY	98647	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
8	UG/G-DRY	98648	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<2.00	<2.00	<2.00	<2.00	<2.00
ISODRIN	UG/G-DRY	98649	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.600	<0.600	<0.600	<0.600	<0.600
1,4 DITHIANE	NE HG/G- DRY	98650	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<2.00	<2.00	<2.00	<2.00	<2.00
DICYCLOPEN	TAD IENE	98651	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<6.00	6.00	(6.00	00.9>	00°9>
BCP(NEMAGON)	ON)	98652	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.600	<0.600	<0.600	<0.600	<0.600
P-CLPHENYI SULFIDE	METHYL- UG/G-DRY	0 8653	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
<u></u>	THYL-	98654	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<1.00	<1.00	<1.00	<1.00	<1.00
ATRAZ INE	UG/G-DRY	98655	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.500	<0.500	<0.500	<0.500	<0.500
SUPONA 116.	UG/G-DRY	98656	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.900	<0.900	<0.900	<0.900	<0.900
OMMP UG.	UG/G-DRY	98657	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<3.00	(3.00	<3.00	<3.00	<3.00
PARATHION UG/	UG/G-DRY	98658	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<2.00	<2.00	<2.00	<2.00	<2.00
P-CLPHENYLMETHYL- SULFONE UG/G-DR'	LMETHYL- UG/G-DRY	98703	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.400	<0.400	<0.400	<0.400
COORDINATE, E/W STP	? 	98393 0 98393														
TRANS-1,2-DICHLORO- ETHENE UG/G-DRY	-DICHLORO- UG/G-DRY	98687	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.800	<0.800	<0.800	<0.800	<0.800
ETHYLBENZENE UG/	NE UG/G-DRY	98986	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.400	<0.400	<0.400	<0.400
METHYLENE CHLORIDE UG/G-DRY	CHLORIDE UG/G-DRY	0 0 0	3.63	3.61	3.69	3.64	2.38	1.43	0.938	1.05	0.900	A A	NA	X X	X X	¥

STATUS:
05/08/87
ENGINEERING
SCIENCE &
ENVIRONMENTAL

PROJECT NAME RMA TASK14
PROJECT MANAGER M. WITT
LAB COORDINATOR PAUL GEISZLER

	PARAMETERS Units	STORET #	BLK T140C	BLK T140C 5	BLK T14QC 6	BLK T140C 7	BLK T140C 8	SAP BLK T14QC 10	SAMPLE 1D/# K BLK C T14QC 0 11	BLK T140C 12	BLK T140C	BLANK T140C 52	BLANK T14QC 53	BLANK T14QC 54	BLANK T140C 56	BLK T140C 63
	DATE TIME		02/28/86	98/50/60	98/90/ε0	98/90/ε0	98/11/80	03/14/86	03/14/86	04/01/86	04/07/86 00:00	05/12/86	05/12/86	05/12/86	05/12/86	01/11/86 00:00
	TETRACHLOROETHENE	06986	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.500	<0.500	<0.500	<0.500	<0.500
	TOLUENE 35/5 BILL	16986	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
	1,1,1-TRICHLORO- FTHANE 16/6-DRY	98692	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.500	<0.500	<0.500	<0.500	<0.500
	1,1,2-TRICHLORO- ETHANE UG/G-DRY	98693	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.600	<0.600	<0.600	<0.600	<0.600
)ROE	98694	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.600	<0.600	<0.600	<0.600	<0.600
	M-XYLENE UG/G-DRY	98695	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	0.360	<0.300	<0.300
	M18K 16/6-08Y	96986	<0.500	<0.500	<0.500	<0.500	<0.500	1.20	<0.500	<0.500	<0.500	<0.400	<0.400	<0.400	<0.400	<0.400
B-2	DMDS 116/6-DRY	76986	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<4.00	4.00	<4.00	<4.00	<4.00
8	BENZENE 116.6-DBY	66986	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<1.00	<1.00	<1.00	<1.00	<1.00
	O-AND/OR P-XYLENE	98700	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	CARBON TETRACHLORIDE	8986	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.400	<0.400	<0.400	<0.400
	CHLOROBENZENE IIG/G-DRY	98681	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
	CHLOROFORM	98682	0.748	0.946	1.10	0.989	0.615	<0.300	<0.300	<0.300	<0.300	<0.700	<0.700	<0.700	<0.700	<0.700
	1, 1-DICHLOROE THANE	98683	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.500	<0.500	<0.500	<0.500	<0.500
	1,2-DICHLOROETHANE	98684	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.400	<0.400	<0.400	<0.400
	BICYCLOHEPTADIENE	98986	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.800	<0.800	<0.800	<0.800	<0.800
	UNK 525 116/6	90016	0.951													
	UNK 529 16/6	90018	0.572													
	UNK534 1676	90114	0.839													
	UNK 538	36 90123														
	9/90	36														

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PROJECT NAME RMA TASK14
PROJECT MANAGER M. WITT
LAB COORDINATOR PAUL GEISZLER

BLANK BLK T14QC T14QC 56 63	98/11/20 98/11/20 90:00																									
BL/	05/17/86																					•				
BLANK T140C 54	05/12/86																									
BLANK T140C 53	05/12/86																									
BLANK T140C 52	05/12/86																									
BLK T140C	04/07/86 00:00																									
BLK T14QC 12	04/01/86 00:00																									
SAMPLE 1D/# K BLK C T14QC	03/14/86 03/14/86																									
SA BLK T140C																										
BLK T140C	03/13/86																									
BLK T140C	98/90/E0																									
BLK T14QC 6	98/90/60 98/90/60 98/50/60	13.0												20.1												
BLK T140C 5	03/02/86																									
BLK T140C 3	02/28/86	18.3	20.0	1.19			0	0.300		0.966			0.423	25.7							7.62					
STORET #		86106	90024	36 90027	36 90550	36	36	36	90033	90506	36	36	90047	36 90049	36 9006	36	9006 1 36	90065	99006	69006	36 90070	36	36	90072	90105	36
IERS Units		9/ 911	2 2 21	9 /90	9/90	9/90	9/90	9/9n	3/311	ò	9/90	9/90	9	9/90	9/9n	9/90	0/00	9/9/1	2 2	9 9	9/90	9/90	9/90	9/9/1		9/90
PARAMETERS	DATE	UNK 540	UNK 542	UNK 545	UNK 550	UNKSSI	INK STR		UNK 562	1 UNK 566	29 29		UNK 586	UNK 588	UNK 603		UNKEU4	UNK 608	UNK 609	UNK 613	UNK 614	IINKEIS		UNK617	UNK619	

PROJECT NAME RMA TASK14
PROJECT MANAGER M. WITT
LAB COORDINATOR PAUL GEISZLER

BLK T140C 63	00:00 00:00																							
BLANK T14QC 56	05/12/86 07/11/86 00:00																							
BLANK T140C 54																								
BLANK T14QC 53	05/12/86 05/12/86 05/12/86																							
BLANK T14QC 52																								
BLK T14QC	04/07/8 6 00:00																							
BLK T14QC 12																								
SAMPLE 1D/# .K BLK)C T14QC	03/14/86 03/14/86 04/01/86 00:00																							
SA BLK T140C 10	03/14/86																							
BLK T14QC 8	98/11/18																							
BLK T140C 7	98/90/60																							
BLK T140C 6	98/90/£0	1.38					0.375		11.6	0.520						14.7	0.859							
BLK T140C 5	98/50/£0																							
BLK T14QC	02/28/86								12.3															
STORET #		90074	90006	90077 77006	90080	90087	06006	90107	90133	90134	36	0	90176 0	90015	90132	90023	36 90026	36	36 36	66006	90126	9E006	36	90037 36
ERS UNITS		9	9 6/90	a ()	9/90	9/90	9 4	9 2	9/90	9 /90	9 /9n	9 /90	9/90	9/90	9/311	3	9/90	9/90	9/90	2	9 / 90	9/9N	9/90	9/90
PARAMETERS	DATE	UNK 620	UNK 622	UNK 623	UNK 627	UNK 635	UNK 638	UNK641	8-3 B-3	O UNK 650	OT LYMIT	0 N	UNK 133	UNK 524	UNK 528	UNK 54 1	UNK 544	7 11 2141	OIN 330	UNK 559	UNK 560	LINK 567	,	UNK 568

PROJECT NAME RMA TASK14 PROJECT MANAGER M. HITT LAB COORDINATOR PAUL GEISZLER PROJECT NUMBER 85937 0420 FIELD GROUP T140C 30.IMB

BLK T140C 63	00:00																							
BLANK T140C 56	05/12/86 05/12/86 07/11/86 00:00																							
BLANK T140C 54	05/12/86																							
BLANK T14QC 53	05/12/86 05/12/86																							
BLANK T14QC 52																								
BLK T14QC 13	04/07/86 00:00																							
BLK T14QC 12																								
SAMPLE 1D/# BLK BLK 14QC T14QC 10 11	03/13/86 03/14/86 03/14/86 04/01/86 00:00																							
SAI BLK T14QC 10	03/14/86																							
BLK T140C																								
BLK T140C	98/90/E0																							
BLK T140C	98/90/E0																					8.63		
BLK T14QC 5	98/90/60																							
BLK T140C	02/28/86																							
STORET #		90038	00106	90121	90040	36 90041	36 90042	36 90043	36	36	90046	90115	30 90 102 36	90048	90051	90103	90052	90053	36 90054	36	36	75006 75	85006	36
RS UNITS		9/ 9/1		9/90	9/90	9/90	9/90	9/90	9/90	9/90	9/3/1	9 6	9/90	2/31	0 0	2/22	2 4	9 /90	9/90	9/90	9/90	9/ 9/1	2	9/90
PARAMETERS	DATE	UNK 569	UNK 573	UNK 575	UNK 576	UNK 577	UNK 578	UNK 579		085 -31	UNK 583	UNK 584	UNK 585	UNK 587	UNK 591	UNK 592	UNK 593	UNK 594	UNK 595		8 KC VNIO	UNK 600	UNK 60 1	

PROJECT NAME RMA TASK14
PROJECT MANAGER M. WITT
LAB COORDINATOR PAUL GEISZLER PROJECT NUMBER 85937 0420 FIELD GROUP T14QC 30.IMB

SAMPLE ID/# .K BLK BLK BLK BLANK BLANK BLANK BLANK BLANK)C T14QC T14QC T14QC T14QC T14QC T14QC T14QC 7 8 10 11 12 13 52 53 54 56 63	36 03/13/86 03/14/86 04/01/86 04/07/86 05/12/86 <th></th>																							
BLK 1140C	98/90/80																							
BLK T140C	98/90/E0 98/50/E0											70.1	0.390				d	700.0						
BLK T14QC 5	98/50/60																							
BLK T140C	02/28/86																							
STORET #		90063	60067	96 8900 6	36 90104	36 90073	36 90075	36 90118	36 90078	36 9008	36	90082 36	90085	98006	96 9008	36	36	36	90192	90648	36	36	11106	36
RS UNITS		٠, ١	9 9	9/90	9 /90 	9/90	9/90	9 /90	9 /90	9/90	9/90	9/90	9/311		9/90	0/9N	9/90	9/90	9/311		9/90	9/90	:	9/90
PARAMETERS	DATE TIME	UNK 606	UNK 611	UNK 612	UNK 616	UNK 618	UNK 621	UNK 624	UNK 625	32 32		UNK 629	UNK 633	UNK 634	0NK 636	077/2011		UNK 042	UNK 646	UNK 648	7 7 3 3 3 3 3 3 3 3 3 3	UNKD43	UNK 652	

			ENA	ENVIRONMENTAL SCII	SCIENCE &	ENGINEERING	/80/50 9	ENCE & ENGINEERING 05/08/87 STATUS:	••	PAGE#	œ				
				PROJECT NUMBER 8 FIELD GROUP 1	UMBER 8593 UP T140	85937 0420 T14QC	PROJECT PROJECT LAB COO	PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER	MA TASK14 . WITT AUL GEISZLE	<u>ec</u>					
PARANETERS UNITS	STORET #	BLK T14QC 3	BLK T14QC 5	BLK T14QC 6	BLK T140C 7	BLK T14QC 8	SAMPL BLK T140C	SAMPLE 1D/# LK BLK QC T14QC 10 11	BLK T140C 12	BLK T140C 13	BLANK T140C 52	BLANK T14QC 53	BLANK T14QC 54	BLANK T14QC 56	BLK T140C 63
DATE TIME		02/28/86	02/28/86 03/05/86 03/06/86 03/	98/90/£0	98/90/€0	98/11/60	03/14/86	03/14/86 03/14/86	04/01/86 04/07/86 05/12/86 00:00 00:00	04/07/86 00:00	05/12/86	05/12/86	05/12/86 05/12/86	05/12/86	01/11/86 00:00

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05/08/87 STATUS:	PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER
ENVIRONMENTAL SCIENCE & ENGINEERING 05/08/87 STATUS:	PROJECT NUMBER 85937 0420 FIELD GROUP T14QC 30.1MB

בים בסטום וואווסיים ביים	SAMPLE 1D/#																										
	BLK OP SED 80	04/02/86 00:00	SE	0.0	QCMB	æ	9	2.4	2	[V V	×		ď.	¥	2	Ē	<0.050	<0.900	<0.300	<0 4 00	001	40.700	<1.00	<0.300	<0.300	
	BLK T14QC 81	05/04/86 00:00	80	0.0	QCMB	æ	ပ	2.4										N A	<0.500	<0.600	<2.00		00.47	6.00	<0.500	<0.500	
	BLK T14QC 69	01/11/86 00:00	So	0.0	QCMB	¥	ŋ	0.01										X A	<0.500	<0.600	<2.00	5	00.4	6.00	<0.500	<0.500	
	BLK T140C 68	00:00 00:00	So	0.0	0CMB	¥	9	0.01										X Y	<0.500	<0.600	<2.00	9	00.	6.00	<0.500	<0.500	
	BLK T140C 66	00:11/86 00:00	SO	0.0	QCMB	æ	9	0.01										X	<0.500	<0.600	<2.00	00 47	90.1	(6.00	<0.500	<0.500	
	STORET # METHOD		71999	99758A	99759	99720	72005	70320	1028	0	99584	1043	0	0	1093	1003	0	71921	98326	0 98365	0 98364	0	0	98361 0	98363	98644	
	P ARAMETERS Units	DATE TIME	SAMPLE TYPE	SAMPLE DEPTH FT	SITE TYPE I	INSTALLATION CODE	SAMPLING TECHNIQUE	MOISTURE	CADMIUM		CHRUMIUM UG/G-DRY	COPPER	UG/G- DRY	UG/G-DRY	ZINC	UG/G-DRY ARSENIC	UG/G- DRY	MERCURY 116 /6-DBY	ALDRIN	UG/G- DRY DIELDRIN	UG/G-DRY	UG/G-DRY	UG/G-DRY.	CHLORDANE UG/G- DRY	00E, PP'	1,4 OXATHIANE UG/G-DRY	

PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER	SAMPLE 1D/#																								
0420	BLK OPSED 80	04/02/86 00:00	<0.500	<0.300	<1.00	<0.600	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.700	<0.500	?	00.27	<0.700	<0.300				<0.300	<0.300		4.92
PROJECT NUMBER 85937 0420 FIELD GROUP T14QC 30.IMB	BLK T140C 81	05/04/86 00:00	<3.00	<0.300	<1.00	<2.00	<0.600	<2.00	6.00	<0.600	<0.300	<1.00	<0.500	<0.900	5	73.00	<2.00	<0.400							
PROJECT NUME FIELD GROUP 30.1MB	BLK T140C 69	00:00 00:00	<3.00	<0.300	<1.00	<2.00	<0.600	<2.00	00°9>	<0.600	<0.300	<1.00	<0.500	<0.900	5	90.50	<2.00	<0.400							
	BLK T140C 68	00:00 00:00	<3.00	<0.300	<1.00	<2.00	<0.600	<2.00	6.00	<0.600	<0.300	<1.00	<0.500	<0.900	9	99.5	<2.00	<0.400							
	BLK T140C 66	00:00 00:00	<3.00	<0.300	<1.00	<2.00	<0.600	<2.00	(6.00	<0.600	<0.300	<1.00	<0.500	<0.900	8	3	<2.00	<0.400				<0.800	<0.400	;	E E
	STORET #		98645	98646	98647	98648	98649	98650	0 0	0 98652	0 98653	0 9865 4	0 98655	98656	0	0	98658	98703	0	38386	98393	28986	88986	0	0
	PARAMETERS Units	DATE TIME	DIMP	VAPONA UG/G-DRY	US/G - DRY HEXACHLOROCYCLOPENT- AD1FNF 116/G-DRY	8	I SODRIN	1,4 DITHIANE	DICYCLOPEN	B DBCP(NEMAGON)	P-CLPHENYI	SULFIDE UG/G-DRY P-CLPHENYLMETHYL-	SULFOXIDE UG/G-DRY ATRAZINE	SUPONA UG/G-DRY	UG/G-DRY.	UG/G-DRY	PARATHION IIG/G-DRY	₹	SULFONE UG/G-DRY	COURDINAIL, N/S	COORDINATE, E/W	7	ETHYLBENZENE ETHYLBENZENE	UG/G-DRY	TETTILENE CALCATUE OG/G-DRY
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STATUS:
05/08/87
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PROJECT NAME RMA TASK14 PROJECT MANAGER M. MITT LAB COORDINATOR PAUL GEISZLER	SAMPLE ID/#																								
7 0420	BLK OPSED 80	04/02/86 00:00	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.500	<0.300	<0.300	<0.500	<0.300	<0.300	0.717	<0.300	6	(0.300	<0.300						
PROJECT NUMBER 85937 0420 FIELD GROUP T14QC 30.1MB	BLK T140C 81	05/04/86 00:00																							
PROJECT NUME FIELD GROUP 30.1MB	BLK T14QC 69	00:00 00:00																							
	BLK T140C 68	01/11/86 00:00																							
	BLK T14QC 66	00:00 00:00	<0.500	<0.300	<0.500	<0.600	<0.600	<0.300	<0.400	<4.00	<1.00	<0.500	<0.400	<0.300	<0.700	<0.500	007	10.400	<0.800						
	STORET #		06986	98691	98692	98693	98694	98695	96986 0	0 98697	0 0	0 98700	8986	0 0 0	98682	0 88683	0	76564	98986	91006	96	36	90114 36	90123	36
	PARAMETERS UNITS	DATE TIME	TETRACHLOROETHENE	TOLUENE UC/C-DRY	1, 1, 1-TRICHLORO- FIHANE 16.6-DRY	~	SQ.	M-XYLENE	#18K	B OMDS	O UG/G-DRY BENZENE	<u>م</u>	UG/G-DRY CARBON TETRACHLORIDE	UG/G-DRY CHLOROBENZENE	CHLOROFORM	UG/G-DRY 1,1-DICHLOROETHANE	UG/G-DRY	UG/G-DRY	BICYCLOHEPTADIENE	UNK525	9/90	9/9n 67cmn	UNK534 11676	UNK538	9/90

PAGE#																									
05/08/87 STATUS: PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER	SAMPLE 1D/#																								
ENVIRONMENTAL SCIENCE & ENGINEERING PROJECT NUMBER 85937 0420 FIELD GROUP T14QC 30.1MB	BLK OPSED 80	04/02/86 00:00																							
ONMENTAL SCIENCE & ENGINE PROJECT NUMBER 85937 0420 FIELD GROUP T14QC 30.1MB	BLK T140C 81	05/04/86 00:00																							
RONMENTAL S PROJECT NU FIELD GROU 30. IMB	BLK T14QC 69	01/11/86 00:00																							
ENVI	BLK 7140C 68	01/11/86 00:00																							
	BLK T140C 66	00:00 00:00																							
	STORET # METHOD		90198	90024	90027	90550	90095	86006 86006	90033	36	36	90045	90047	90049	9006 9006	36 90061	39006	99006	36 9006	36	90070 36	12006	90072	90105	36
	IERS UNITS		9/ JII							9 /90	9/90	a/ 311		9 /90	9/9/	9/90	9 4	9/90	9 /90	9/90	9/90	ال / د	2/20		9/90
	PARAMETERS	DATE Time	UNK 540	UNK 542	UNK 545	UNK 550	UNK 55 1	UNK 558	B UNK 562	-3		UNK 582	UNK 586	UNK 588	UNK 603	UNK 604	UNK 608	UNK 609	11NK 6 13		UNK 6 14	UNK 6 1 5	UNK 617	UNK 619	

7 0420 PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER	SAMPLE ID/# BLK OPSED 80	04/02/86 00:00																						
PROJECT NUMBER 85937 0420 FIELD GROUP T14QC 30.IMB	BLK T140C 81	05/04/86 00:00																						
PROJECT NUME FIELD GROUP 30.1MB	BLK 1140C 69	07/11/86 00:00																						
	BLK T140C 68	01/11/86 00:00																						
	BLK T140C 66	00:00 00:00																						
	STORET # METHOD		9007 4	90076	90077	08006	78006	06006	36 90107	36	90133	90134	36 90181	0 92106	90015	90 132 36	90023	90056	36 90152	36	36	90126 36	9E006	90037
	ERS UNITS		3/311	9/91	2/30	2/20	2/20	9/90	9/90	9/90	9/90		9/90	9/90	9/90	a /an	2/31		9/90	9/90	9/9 0	9/90	9/911	ງ/ນກ
	PARAMETERS	DATE	UNK 620	UNK 622	UNK 623	UNK 627	UNK 635	UNK 638	UNK 64 1		UNK 643	UNK 650	UNK 110	UNK 133	UNK 524	UNK 528	UNK 54 I	UNK 544	UNK 556	INK AND	CCC WIND	UNK 560	UNK 567	UNK 568
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PAGE#																											
05/08/87 STATUS:	PROJECT NAME RMA TASK14 PROJECT MANAGER M. WITT LAB COORDINATOR PAUL GEISZLER	SAMPLE 1D/#																									
ENVIRONMENTAL SCIENCE & ENGINEERING	7 0420 C	BLK OPSED 80	04/02/86 00:00																								
SCIENCE &	PROJECT NUMBER 85937 0420 FIELD GROUP T140C 30.1MB	BLK T140C 81	05/04/86 00:00																								
RONMENTAL	PROJECT N FIELD GRO	BLK T140C 69	00:00 00:00																								
ENVI		BLK T140C 68	00:00 00:00																								
		BLK T140C	07/11/86 00:00																								
		STORET #		90038	90106	90121	36 90040	36 90041	36 90042	36	90043 36	90044	35 90046	36	36	36	36	90051 36	90103	90052	36	36	90054	90026	36 90057	36 90058	36
		ETERS Units			3 06/6					9/9n	9/90			9/9/	9/90	9/90	9/90	9/90			9/90	9/90	9/90				9/90
		PARAMETERS	DATE	UNK 569	UNK 573	UNK 575	UNK 576	UNK 577	UNK 578	IINK 570	, JOHN O	UNK 580	UNK 583	UNK 584	UNK 585	IINK 587		UNK 591	UNK 592	UNK 593	UNK 594		UNK 595	UNK 598	UNK 600	UNK 601	
											В	-39	9														

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UNITS

PARAMETERS

B-41

STATE OF COLORADO

COLORADO DEPARTMENT OF HEALTH

4210 East 11th Avenue Denver, Colorado 80220 Phone (303) 320-8333

October 22, 1987



Kriy Komer Covernor

Thomas M. Vernon, M.U. Executive Director

Mr. Donald Campbell Program Manager's Office RMA Contemination Cleanup Department of the Army Aberdeen Proving Grounds Maryland 21010-5401

Dear Mr. Campbell:

Enclosed are the state's comments on Task 2, 7, 12, 14 and 15 Draft Phase I Contamination Assessment Reports (CARs) for the following sites:

Task_2

Site 1-3 Mounded Material

Task 7

Site 3-1/3-3 Drainage Ditch and Overall Basin Site 24-7 North Bog

Task 12

Site 12-1 Buried Lake Sludge

<u>Task_14</u>

-Site 4-5 Disposal Trenches Site 30-1 Impact Area Site 30-5 M-34 Demilitarization Area

<u>Task 15</u>

Site 4-2 Burning Pit

Our principle concerns with the reports are that the representation of the extent of contamination in the CAR is severely underestimated, and that the implementation of the remaining Phase I plans as proposed and the proposed Phase II programs will not adequately define the nature and extent of contamination. The plans should be modified to fully define the nature and extent of soil contamination in these sites, and to be consistent with the requirements of the National Contingency Plan for the conduct of remedial investigations.

871170-1/10

Mr. Don Campbell October 22, 1987 Page Two

The state's comments are subject to change pending the review of the recently obtained 1986 third and fourth quarter GC/MS ground water data.

If you have any questions on the enclosed comments, please contact Jeff Edson.

Sincerely,

David C. Shelton

Director

Hazardous Materials and Wasto Management Division

DCS: nr

CC: Dave Strang, RMA

Ken Conright, Tri-County Health Dept.

Beth Gallegos
Larry Ford, SACWSD

Howard Kenison, Attorney General's Office
Robert Duprey, U.S. EPA
Chris Hahn, Shell Oil Company
Thomas Bick, U.S. Department of Justice
Major Scott Isaacson, Department of the Army
Edward McGrath, Holme, Robert & Owen

RESPONSE TO PRECEEDING GENERAL COMMENT OF THE STATE OF COLORADO ON THE TASK 14 DRAFT FINAL REPORT SITE 30-1: IMPACT AREAS

Response:

The objectives of the Phase I programs as performed and the Phase II programs as planned have been previously presented and explained in the various Technical Plans, the Introduction to the CARs, and successive CAR review meetings. Based on the collective results of the investigative techniques outlined in these references, the nature and extent of contamination have been assessed using the most conclusive data available and best professional judgement. All available historical information, aerial photograph interpretations, geophysical surveys, and chemical analysis results have been used to define the vertical and lateral extent of contamination. Phase I and Phase II boring placements and chemical analyses are intended to provide the most effective procedures of collecting meaningful data on which to base estimates of contamination. The technical plans and investigative techniques for this soil contamination assessment have been presented for comment to EPA, and investigations have been modified, where needed, in accordance with EPA requirements. In addition, all Remedial Investigations (RI) have implemented technical programs consistent with the National Contingency Plan, and CERCLA guidelines for the conduct of RI at hazardous waste sites.

We feel that the RT programs being conducted will adequately define the nature and extent of contamination at RMA and provide meaningful data upon which a Feasibility Study (FS) and future remedial actions can be based. In the event that data gaps still exist at the completion of the Phase II program, further investigative techniques will be pursued to fill such gaps.

In all cases, based on the data presented, the most conservative estimate of contamination has been developed. A revised estimate will be provided at the conclusion of the Phase II program which will more accurately define the extent of contamination at any given site. All estimates are, of course, dependent on final settlement of preliminary pollutant limit values (PPLV) for contaminants at RMA.

RESPONSE TO GENERAL COMMENTS OF OCTOBER 22, 1987 FROM COLORADO DEPARTMENT OF HEALTH PERTAINING TO ALL PHASE I CONTAMINATION ASSESSMENT REPORTS (CARS)

Comment 1:

Potential action levels for organic and inorganic analytes in the soils may be lower than detection limits used in the Phase I program. Contingencies must be made to re-investigate all sites if action levels warrant lower detection limits.

Response:

The Phase I soil investigations utilized certified analytical methods that were developed to minimize the detection limit while allowing the Army to analyze for a wide range of pertinent analytes in a large number of samples. Specific Phase II analytical methods are then utilized to further define the extent of contamination suggested by the Phase I analysis. Phase II methods use specific compound detection devices to reduce the detection limit of any particular compound to the lowest level which is technically achievable, while maintaining a degree of confidence in results which is legally defensible.

Because of the complexity in defining action levels and the lengthy review required to establish tentative levels, this specific issue was placed under consideration by the "How Clean is Clean" committee. Rather than delay the RI 3 to 4 years in order to further define and substantiate the action levels, the program was allowed to proceed, but with some recognized risk. As previously stated to all MOA parties, further remedial investigations may be required to address the final action levels.

Comment_2:

There are numerous, reoccurring, non-target analytes found in many sites. A formal process must be presented to determine whether non-target analytes belong on target analyte lists. Furthermore, target analytes may need to be determined on a source by source (or section by section basis), rather than on an "Arsenal-wide" basis. Revised target analytes programs should be implemented in the Phase II program.

Response:

The Phase II target analyte list for each site investigated is based on available Phase I results, including target and nontarget detections. MOA parties, including representatives from the Colorado Department of Health (CDH), review these data and the nontarget

results regularly to determine that significant nontarget compounds are being adequately addressed in Phase II. Comments received from MOA that are specific in nature are carefully considered by the Army. In each site investigation, the Army reviews nontarget data and MOA comments in order to ascertain the necessity of further defining the extent of a Phase I nontarget compound. In addition, a committee comprised of RI and FS team members is systematically evaluating all nontarget compounds detected during the RI program.

Although this technical review process is subjective, serious candidates for inclusion on the target list have included: those compounds which occur frequently or in a pattern; compounds of high concentrations; high toxicity compounds; carcinogenic compounds; and compounds that may be considered as byproducts or degradation products of target compounds. Compounds such as benzothiazole and several Army agent degradation products were added to the Phase II target list as a result of this review process. In each case, the Army has provided ample opportunity to every party to formally document any serious concern regarding the Phase II target analyte program.

Comment 3:

For sites where contaminants have been detected in the unsaturated zone at the water table, the Phase II program must sample the saturated zone. These borings will determine the vertical extent of source-related contaminants and provide insight into potential groundwater contamination.

Response:

The intent of the Phase I soil investigations as described in the various technical plans submitted to the MOA parties was to identify and quantify contamination in the unsaturated zone. Therefore, sampling was restricted to intervals at or above the water table. In addition to the soil program, the Army has conducted an extensive program of surface and ground water monitoring at RMA. Soils information will be evaluated in conjunction with information gathered during the various water analytical programs that have been conducted. Evaluation of soil contamination with respect to surface and ground water monitoring results will be presented in the Study Area Reports to be issued to MOA parties. In some instances, the Phase II program will sample intervals at or below the water table at locations within each site suspected of contributing to aquifer contamination. Contaminant concentrations in these soil samples, if detected, will also be compared against local ground water quality data.

Comment 4:

The Army has labeled many non-target analytes found in the soils as a laboratory induced contamination. Little, if any, information is presented to support this determination. Many of these contaminants have been found in concentrations too high to be indicative of laboratory contamination (e.g., methylene chloride 800 ppm, Site 4-5). Further, many laboratory batches that exhibit "laboratory contamination" have clean laboratory blanks.

If laboratory induced contamination overwhelms the GC/MS screen, the chemical analysis program becomes suspect and must be re-evaluated. Further, a procedure for documenting the identification and verification of suspected laboratory contaminants must be presented.

Response:

A position paper concerning contaminants which are listed as "laboratory induced" is currently in preparation and will be released to MOA parties upon completion.

RESPONSES TO SPECIFIC COMMENTS OF THE COLORADO DEPARTMENT OF HEALTH ON THE DRAFT FINAL TASK 14 REPORT SITE 30-1: IMPACT AREAS (VERSION 2.2)

Comment_1:
p.7

The statement that the 10 ppb endrin value was not substantiated in the Task 4 ISP contradicts the findings in the ISP report which indicates an endrin concentration of 10 ppb in monitoring Well 30005.

Response

The statement concerning the 10 ppb endrin value in Well 30004 from the RMA database has been corrected to a 10 ppb endrin value in Well 30005 in the Task 4 ISP Report.

Comment_2: is not p. 14

Figure 30-1-6 indicates that the Old Sanitary Landfill included as part of the Site 30-4 Landfill, but is part of Site 30-1. However, the Army did not investigate the Old Sanitary Landfill area pursuant to the Site 30-1 Phase I Technical Plan. Similarly, the Task 7 - Site 30-4 CAR did not include the Old Sanitary Landfill area in its investigation. A program must be initiated to define the nature and extent of any contamination in this area.

Response

The 1984 RMACCPMT map (RIC#84034R01) was the basis of all Phase I soil investigations, and Site 30-4 (Sanitary Landfill) boundaries. During the Site 30-1 geophysical investigation, intense magnetic and EM inphase response indicated the location of the Old Sanitary Landfill. The nature and extent of contamination in the Old Sanitary Landfill as well as the locations of the six soil borings in this area are presented in the Site 30-4 CAR (Task 7).

Shell Oil Company



c/o Holme Roberts & Owen Suite 1800 1700 Broadway Denver, CO 80290

June 24, 1987

USATHAMA
Office of the Program Manager
Rocky Mountain Arsenal Contamination Cleanup
ATTN: AMXRM-EE: Chief: Mr. Donald L. Campbell
Bldg E4585, Trailer
Aberdeen Proving Ground, MD 21010-5401

Dear Mr. Campbell:

Enclosed herewith are Shell Oil's comments on the Draft Final Contamination Assessment Reports for sites 19-UNC, 22-UNC, 27-UNC, and 30-1 assessed under Task 14.

Very truly yours,

C. K. Hahn

Manager

Denver Site Project

RDL:ajg

Enclosure

cc: (w/enclosure)
USATHAMA

Office of the Program Manager

Rocky Mountain Arsenal Contamination Cleanup

ATTN: AMXRM-EE: Mr. Kevin T. Blose

Bldg E4585, Trailer

Aberdeen Proving Ground, MD 21010-5401

USATHAMA

Office of the Program Manager Rocky Mountain Arsenal Contamination Cleanup ATTN: PMSO: Mr. Brian L. Anderson Aberdeen Proving Ground, MD 21010-5401

87502-12

cc: Mr. Thomas Bick
Environmental Enforcement Section
Land & Natural Resources Division
U.S. Department of Justice
P.O. Box 23896
Benjamin Franklin Station
Washington, D.C. 20026

Mr. Scott Isaacson Headquarters - Department of the Army ATTN: DAJA-LTS Washington, D.C. 20310-2210

Ms. Patricia Bohm Office of Attorney General CERCLA Litigation Section 1560 Broadway, Suite 250 Denver, CO 80202

Mr. Chris Sutton Colorado Department of Health 4210 East 11th Avenue Denver, CO 80220

Mr. Robert L. Duprey
Director, Air & Waste Management Division
U.S. Environmental Protection Agency, Region VIII
One Denver Place
999 18th Street, Suite 1300
Denver, CO 80202-2413

Mr. Connally Mears
U.S. Environmental Protection Agency, Region VIII
One Denver Place
999 18th Street, Suite 1300
Denver, CO 80202-2413

Mr. Thomas P. Looby Assistant Director Colorado Department of Health 4210 East 11th Avenue Denver, CO 80220

RESPONSES TO SPECIFIC COMMENTS OF THE SHELL OIL COMPANY ON THE DRAFT FINAL TASK 14 REPORT SITE 30-1: IMPACT AREAS (VERSION 2.2)

Comment 1: Page iv, 9 first paragraph Two firing stations for the Site 30-1 mortar impact area are shown on RMA Drawings D-748, 4.2 inch Mortar Rauge, June 4, 1948 and AG-7, Area_Map, Observation Post_Bldg_853, Mortar_Range, 4-26-45. One station (map D-748) is located alongside "C" Street in Section 26. The concrete firing emplacements are clearly visible at this station today. A "short range firing house" is shown on Drawing AG-7 located along the eastern boundary of Section 30 directly west of Site 30-1.

The legend on Drawing AG-7 indicates that Site 30-1 may also have been used for testing incendiary (M69X) bombs. A "test stand" is shown which is located 300 ft northeast of the Observation Post Building 853.

Response

Drawings D-748 and AG-7 have been reviewed and evaluated for additional information relevant to the Site 30-1 investigation. The observation past locations have been included in Section 2.0. The "Short Range Mortar Firing House" is on the western boundary of Section 30 directly west of Site 30-1. Mortar fire is shown to follow a due east trajectory and would impact approximately 750 ft north of the Observation Post Building 853. The path corresponds to the primary impact area as determined from the Phase I investigation. A test stand possibly used for testing M69X bombs is 300 ft northeast of the observation bunker on Drawing AG-7. The test stand was not observed in the field, and no physical indications of drop testing activities in this area are evident. Site 36-2 is reported to have prooftested M69 bomblets, although all activities were documented to occur within Building 725. The test stand described on Drawing AG-7 was either never constructed or used, or used and removed with no resultant wastes.

Comment_2: paragraph 3.3 first bullet

Testing for IMPA will provide information on only one of the Army's potential degrading products. It is recommended all other Army degradation products which have certified methods also be checked during the analyses.

Response

IMPA (GB degradation products) and TDGCL (mustard degradation products) are two of the specific certified methods to detect Army agent degradation products. Both analyses are scheduled for Phase IT samples from trenches, as are ICP metals, arsenic,

mercury, and semivolatile organic compound analysis. The semivolatile method is certified for the detection of DIMP, DMMP, oxathiane, and dithiane. The Phase II program as designed will provide complete information on agent degradation products, and the nontarget analysis should identify other compounds indicative of contamination. It should be noted, however, that no history of agent contaminated material is documented for this site.

Comment_3: paragraph 3.4

As with most of the post-Phase I contaminated soil volume revisions, the volume calculated for Site 30-1 is arbitrary and misleading. The boundary drawn for the "main impact area" is arbitrary. Undoubtedly there are UXO's outside this area which, because of their lower spatial density in a larger area than the "main impact area", will result in a relatively larger quantity of potentially contaminated soil to be handled.

Response

The boundary drawn for the main impact area has been determined from the RMACCPMT map, and supported by field reconnaissance and visual evidence. The volume of potentially contaminated soil has been estimated from chemical analysis results, geophysics, and historical research. Based on the Phase I investigation of the site, this estimate of potentially contaminated soil provides accurate information upon which to base feasibility assessments.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET—SUITE 500 DENVER, COLORADO 80202-2405

REF: 8HWM-SR

CCT 1 4 1987

Colonel W. N. Quintrell
Program Manager
AMXRM-EE Department of the Army
U.S. Army Toxic and Hazardous Materials Agency
Building 4460
Aberdeen Proving Ground, MD 21010-5401

Re: Rocky Mountain Arsenal (RMA), Documentation of suspected laboratory contamination.

Dear Colonel Quintrell:

EPA Region VIII has the enclosed preliminary comments for Sites 4-6, 24-6, 2-8, 3-4, and supplemental comments on Sites 30-1, and 4-5 from our contractors. Our contact on this matter is Mr. Connally Mears at (303) 293-1528.

Sincerely yours,

Robert L Duprey, Director

Hazardous Waste Management Division

Enclosure

cc: David Shelton, CDH
Chris Hahn, Shell Oil Company
R. D. Lundahl, Shell Oil Company
Thomas Bick, Department of Justice
Elliott Laws, Department of Justice
Preston Chiaro, Ebasco
Mike Witt, ESE



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION VIII

999 18th STREET—SUITE 500 DENVER, COLORADO 80202-2405

REF: 8HWM-SR

SEP 2 3 1987

Colonel W. N. Quintrell Program Manager AMXRM-EE Department of the Army U.S. Army Toxic and Hazardous Materials Agency Building 4460 Aberdeen Proving Ground, MD 21010-5401

> Re: Rocky Mountain Arsenal (RMA), Review of Final Phase I CAR Report for Task 14, Site 30-1, Impact Area.

Dear Colonel Quintrell:

EPA Region VIII has reviewed the above referenced final report and has the enclosed preliminary comments from our contractors. Given the status of Phase II Remedial Investigation work at this site and the nature of the enclosed comments, it may be that our concerns can be addressed during the Feasibility Study for RMA. If you wish to pursue that option, please call Mr. Connally Mears at (303) 293-1528.

Sincerely yours,

Robert L. Duprey, Director

Hazardous Waste Management Division

Enclosure

cc: David Shelton, CDH
Chris Hahn, Shell Oil Company
R. D. Lundahl, Shell Oil Company
Thomas Bick, Department of Justice
Elliott Laws, Department of Justice
Preston Chiaro, Ebasco
Mike Witt, ESE

RESPONSES TO SPECIFIC COMMENTS OF ENVIRONMENTAL PROTECTION AGENCY ON THE DRAFT FINAL TASK 14 REPORT

SITE 30-1: IMPACT AREA (VERSION 2.2)

Comment 1:

The small drainage channel crossing through the southwest quadrant of the site should be shown on Figures 30-1-6 through 30-1-8. Are reholes 5330, 5331, and 5337 located in this channel? If so, the report should so state. If not, Phase II should sample this channel.

Response

The small drainage has been added to Figures 30-1-6 thru 30-1-8. Boring 5347 was placed within this drainage.

Comment_2:

Why wasn't a boring located in the mounded area adjacent to Boring 5330? Are these mounds from excavating the nearby trench, or are they burying something?

Response

Field inspection of the mounds near Boring 5330 did not reveal any visual indications of disposal activity or debris. These mounds are the result of initial trench excavation based on proximity to the trenches and lack of visual soil contamination.

Comment 3:

Why were no borings placed in the area labeled "Abundant Metal Debris" in the south central portion of the site?

Response

No borings were placed in the area of "Abundant Metal Debris" based on results of a surface sweep of the area. Personnel with extensive knowledge of ordnance used and stored at RMA investigated the area, and recorded only innocuous metal surface debris.

Comment 4:

The report states that the tentatively identified compound diethylene glycol occurred only in Lot BMS, and was therefore attributed to laboratory contamination. However, the three borings that it occurred in were all located in the same general vicinity and may not be laboratory induced since it did not appear in the blanks analysis. Therefore, diethylene glycol should be added to the analyte list for the Phase 11 borings.

Response

Diethylene glycol (2,2'-oxybisethanol) is a common component of commercially available antifreeze. The compound was detected in three borings that were all in the same general vicinity. This compound was identified in several other Task 14 sites as well. All of these borings were drilled in the winter

months, when antifreeze may be used for field vehicles and equipment. Antifreeze is used overnight in the steam cleaner line and may have bled out of the line before decontamination procedures. Incomplete bleeding of the line may have contaminated both field equipment and the samples. Phase II borings proposed for this site include a GC/MS scan, which will detect diethylene glycol in the nontarget analysis.

Comment_5:

Numerous contamination assessment reacts dismiss low concentrations of tentatively ident—ed compounds and one target analyte (methylene chloride) as a "suspected laboratory contaminant". When analysis of the blanks do not support this conclusion, we feel the reports should substantiate the assertion with additional documentation from the laboratory QA/QC program. Several examples of hits dismissed as suspected laboratory contamination without supporting documentation are cited below.

Site 4-6 30-1	Boring(s) 19 5335, 5338, 5339	Compound methylene chloride oxy-bis ethanol	Concentration 3 0.5, 0.8, 0.9
24-6 2-8	4,11 6	methylene chloride methylene chloride	2, 3 6 (No data on
3-4 4-5	3, 7, 8, 14 11, 2, 10	methylene chloride methylene chloride	BLANKS) 1 - 5 800, 50, 2

Response:

A position paper on "laboratory introduced" contamination is currently being assembled and will be presented to MOA parties upon completion.